

- 567-883 -

March 9, 1989

FIELD DATA SUBMITTAL  
PART 2, REMEDIAL INVESTIGATIVE WORK  
PHASE 2A  
MONTROSE SITE  
TORRANCE, CALIFORNIA

VOLUME FOUR  
OCTOBER 1988 - FEBRUARY 1989  
MONITOR WELL CONSTRUCTION AND SAMPLING



**HARGIS+ASSOCIATES, INC.**  
Consultants in Hydrogeology

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**HARGIS + ASSOCIATES, INC.**

Consultants in Hydrogeology

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March 9, 1989

**VIA FEDERAL EXPRESS**

Ms. Johanna Miller  
Remedial Project Manager  
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Toxics and Waste Management Division  
215 Fremont Street  
San Francisco, CA 94105

Re: Montrose Part 2, Phase 2A, Field Data Submittal, Volume Four

Dear Ms. Miller:

Please find enclosed Volume Four of the field data submittal for the Montrose Part 2, Phase 2A remedial investigation. Volume Four contains field data collected during the groundwater-related activities portion of the Part 2, Phase 2A remedial investigation. Specifically, this volume includes field data for exploratory borings, monitor well construction, and two groundwater sampling rounds. Volumes One through Three of the Part 2, Phase 2A field data submittal were provided to the EPA in December, 1988.

Please contact me if you have any questions regarding this submittal.

Sincerely,

HARGIS + ASSOCIATES, INC.

*Roger A. Niemeyer*

Roger A. Niemeyer  
Senior Hydrogeologist

RAN:kag

Enclosure

cc: Ms. Johanna Miller (3)  
Mr. Robert P. Ghirelli (1)  
Mr. Dan M. Greeno (2)  
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OCTOBER 1988 - FEBRUARY 1989  
MONITOR WELL CONSTRUCTION AND SAMPLING

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HARGIS + ASSOCIATES, INC.

**VOLUME FOUR**  
**OCTOBER 1988 - FEBRUARY 1989**  
**MONITOR WELL CONSTRUCTION AND SAMPLING**

**INTRODUCTION**

The following are field data collected during the Part 2 Phase 2A Remedial Investigation work conducted at and in the vicinity of the Montrose Chemical Company (Montrose) Site in Torrance, California. This is the fourth volume of field data submitted during the Part 2 Phase 2A Remedial Investigative work. The previous volumes submitted contained field data collected during the Dominguez Channel sediment survey and sampling, the off-site soil sampling and the on-site soil sampling. Field work was conducted in accordance with the EPA approved May 20, 1988 Sampling Plan and QAPP. This March 1989 submittal consists of field data collected during the exploratory borings, monitor well installation, and groundwater sampling tasks.

Volume four of the Phase 2A data submittal includes lithologic logs of exploratory borings and monitor wells, organic vapor analyzer (OVA) results, geophysical logs, well construction data, groundwater sampling data, and a monitor well location map.

**EXPLANATION FOR LOGS**

Soil descriptions were compiled based on soil obtained from the standard penetrometer split-tube sampler (SPT sampler), continuous core device, or mud rotary cuttings. Blow counts for the SPT sampler were recorded per 6-inch interval penetrated. Sample recovery was recorded as the ratio of soil recovered to the total interval driven or cored. Color was described using the Munsell Soil Color Chart. Grain size was estimated using ASTM standards D422-63, D643-78 (American Geological Institute, 1982).





A Foxboro OVA 128 flame ionization-type analyzer or a HNU Model 101 photo ionization-type analyzer was used for field measurement of organic vapors in the soil samples. OVA readings follow the procedures outline in the QAPP (Hargis + Associates, 1988). The OVA readings in equivalent parts per million of methane are presented on the logs at the depth interval sampled. The OVA background readings are deducted when reported soil values are below 50 ppm.

The lithologic logs for exploratory borings EB-2A and EB-3 through EB-6 are a compilation of drill cutting and borehole geophysics data. The remaining lithologic logs are based solely on field soil descriptions. Monitor well locations are depicted on Figure 5.

#### DESCRIPTION OF DRILLING

An Ingersoll-Rand TH 100 mud rotary drill rig equipped with a 5 1/2-to 6 1/4-inch bit was used to drill exploratory borings EB-2A, EB-3, EB-4, EB-5, and EB-6. Samples were collected using a Christenson wireline core barrel or from the mud rotary cuttings. Natural gamma, spontaneous potential, point resistivity, and 6-foot lateral resistivity logs were run in each exploratory boring. Geophysical logs are included in Appendix N of this submittal. Exploratory borings were abandoned by pressure cementing from the bottom of the hole to the land surface with neat cement.

A CME 75 hollow-stem auger rig equipped with 10-inch O.D. by 6 1/8-inch I.D. augers was used to construct the upper Bellflower aquitard monitor wells MW-6 and 7 and MW-10 through 15. Soil samples were collected at selected intervals with an SPT sampler for lithologic description. The SPT sampler was advanced using a 140-pound hammer falling 30 inches.

Fifteen feet of 4-inch nominal 316L stainless steel wire wrap well screen with a slot size of 0.020 inches was installed in each upper Bellflower aquitard well. Four-inch nominal schedule 40 PVC well casing was

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installed above the screen in each upper Bellflower aquitard well. Monterey #10 sand was used to filter pack the screened interval. The filter pack was installed to between 3.3 to 6.9 feet above the screened interval. Hole Plug granular bentonite or Volclay 1/4-inch pellets were installed and hydrated to provide the bentonite seal. Approximately 1 foot of silica #60 fine sand was emplaced above the bentonite seal to provide a grout filter. A nine-sack sand/cement slurry was used to backfill the well annulus from the grout filter to land surface. All wells were equipped with locking lids and Christy vaults except MW-14, which was completed above ground.

A Gardner-Denver mud rotary drill rig was used to construct the Bellflower sand and Gage aquifer monitor wells. Cutting samples were collected from the mud rotary fluid returns for lithologic description. The samples collected were used to verify the lithology observed at the exploratory borings.

Drilling operations for Bellflower sand and Gage aquifer monitor wells typically lasted three days. The first day's work entailed setting up at the new location, drilling to conductor casing depth with an 8-inch pilot bit and then reaming to the conductor casing depth with a 13 3/4-inch reamer bit. The second day's operation entailed welding 8 5/8-inch conductor casing and pressure cementing the conductor casing/borehole annular space with neat cement. The third day's work entailed mixing fresh mud and drilling to total depth with a 6-inch pilot bit and then under reaming with a 12-inch under reamer bit to total depth. Well casing installation is described in detail in the following paragraphs. The well casing/conductor casing annular space was grouted with Baroid Benseal or Volclay grout. See Table 0-2 for specific well construction details.

Bellflower sand monitor wells BF-5 through BF-8 were installed with 10 feet of 4-inch nominal 316L stainless steel wire wrap well screen. Slot size and filter pack were either 0.020-inches and #10 sand or 0.045-inches and medium aquarium sand depending upon lithologic conditions encountered at individual well sites. Ten feet of 4-inch nominal 316L stainless steel



blank casing was installed above the screen in each Bellflower sand well. Four-inch nominal schedule 40 PVC casing was installed from the blank stainless steel casing to land surface. Either #60 silica sand or bentonite pellets were installed above the filter pack.

On-site at monitor well BF-9, 6-inch nominal well casing and screen were installed to permit the option of using the well as an extraction well. Twenty feet of screen were installed in the well. The lower 10 feet of screen has a slot size of 0.045 inches and has medium aquarium sand as a filter pack. The upper 10 feet of screen has a slot size of 0.030 inches and has a #3 sand as a filter pack. Sixty feet of blank 316L stainless steel casing was installed above the well screen. Approximately 50 feet of 6-inch nominal schedule 40 PVC casing was installed above the blank stainless casing to land surface.

Gage aquifer monitor wells G-4 through G-7 were installed with 40 feet of 4-inch nominal 316L stainless steel wire wrap well screen. A 0.020-inch well screen and #10 filter pack sand were installed in each well. Ten feet of 4-inch nominal 316L stainless steel blank casing was installed above the screen in each well. Four-inch nominal schedule 40 PVC casing was installed above the blank stainless steel casing to land surface. Either a silica sand #60 or bentonite pellets were installed above the filter pack. Lower Gage aquifer monitor well LG-2 was constructed in a manner similar to the other Gage aquifer monitor wells but has only 20 feet of well screen.

#### WELL DEVELOPMENT PROCEDURES

Phase 2A monitor wells were developed in two stages, referred to as preliminary and final development. Preliminary development was conducted shortly after each monitor well was constructed. The objective of the preliminary development was to remove water or drilling fluid introduced during construction from the well. Upper Bellflower aquitard monitor wells



preliminary development was to remove water or drilling fluid introduced during construction from the well. Upper Bellflower aquitard monitor wells were bailed within 24 hours of well completion. The volume of water removed was equivalent to or greater than the volume of water used to stabilize the boring during well construction. Bellflower sand and Gage aquifer monitor wells were pumped with an electric submersible pump or bailed within 24 hours of completion to remove drilling fluids from the well. Approximately 100 to 250 gallons of water were removed from each Bellflower sand and Gage aquifer monitor well during preliminary development.

Final development was conducted one to ten weeks after well completion. The objective of the final development was to remove fine-grained particles from the filter pack and the formation immediately adjacent to the well. During final development, Phase 2A wells were developed by bailing, swabbing, and pumping. Each well was bailed using a suction bailer to remove the sediment from the well. After bailing, the screened interval was swabbed in discrete intervals. When necessary, the suction bailer was utilized again to remove the sediment. This procedure was repeated as necessary.

After bailing and swabbing, the wells were pumped until the water was clear. The static water level, discharge rate, and pumping duration were recorded.

#### PUMP SETTING PROCEDURES

All monitor wells constructed during Phase 2A were fitted with dedicated purge pumps and sample pumps. The upper Bellflower aquitard wells have a QED Model HR4200 Purge Master pump and a QED Model T1200 bladder pump. The Phase 2A Bellflower sand and Gage monitor wells have Grundfos nominal ten gallons per minute electric submersible purge pumps. The sample pump is a QED Model T1200 bladder pump.



### GROUNDWATER SAMPLING

This section contains field data generated during the January 30-February 3, 1989 and February 6-10, 1989 groundwater sampling rounds at the Montrose site. Groundwater sampling was conducted in accordance with the EPA-approved May 20, 1988 Sampling Plan and QAPP.

Sampling conducted from January 30 to February 3, 1989 was limited to the newly installed off-site monitor wells and on-site BF-9 and LG-2 monitor wells. Water levels were measured at all monitor wells except for MW-2. Sampling conducted from February 6-10, 1989 included all on-site and off-site monitor wells. Water levels were measured at all monitor wells.

Groundwater samples, including duplicate samples, collected during the two sampling rounds were submitted to Brown and Caldwell Laboratories in Pasadena, California for pesticide (EPA Method 608/8080) and volatile organic compound (EPA Method 624/8240) analyses. Field blanks submitted to Brown and Caldwell Laboratories were analyzed for pesticides (EPA Method 608/8080) and volatile organic compounds (EPA Method 624/8240). Trip blanks, submitted to Brown and Caldwell Laboratories were analyzed for volatile organic compounds (EPA Method 624/8240). Laboratory split samples collected in the field during this sampling round were submitted to Analytical Technologies, Inc. in San Diego for pesticide (EPA Method 608/8080) and volatile organic compound (EPA Method 624/8240) analyses. Additional samples were collected during the February 6-10 sampling round from the recently installed Phase 2A monitor wells for common ion and nitrate analysis. These samples were also submitted to Brown and Caldwell Laboratories for analysis.



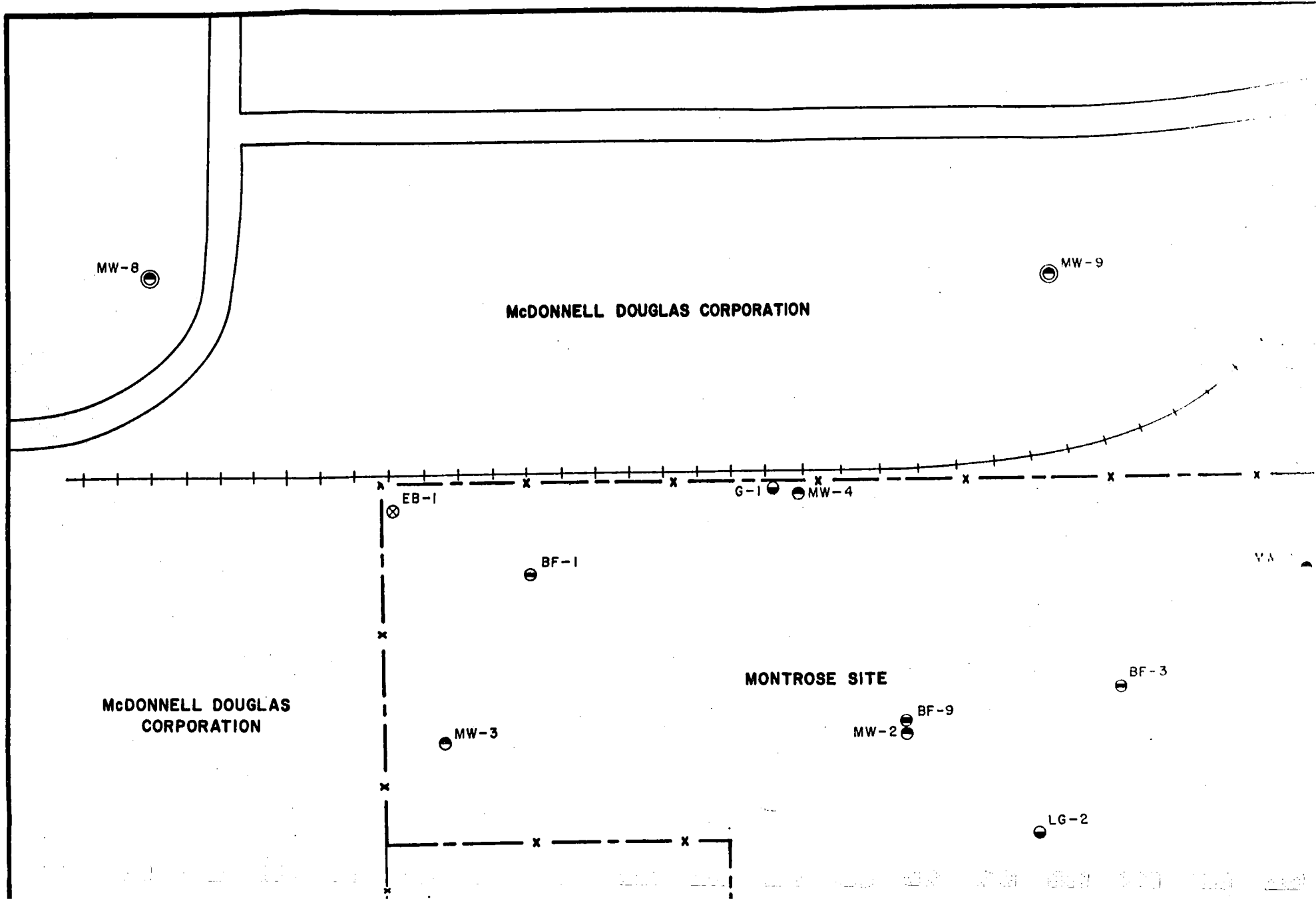
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- Hargis + Associates, Inc., 1987. Information Submission, On-Site Groundwater Investigation, Phase 1, Part 2, Montrose Site, Torrance, California. Prepared for Montrose Chemical Corporation, Torrance, California; February 2, 1987.
- \_\_\_\_\_, 1988a. Remedial Investigative Work, Part 2, Quality Assurance Project Plan, Montrose Site, Torrance, California. Prepared for Montrose Chemical Corporation, Torrance, California; May 20, 1988.
- \_\_\_\_\_, 1988b. Remedial Investigative Work, Part 2, Phase 2A Groundwater, Soil, and Sediment Sampling Plan, Montrose Site, Torrance, California. Prepared for Montrose Chemical Corporation, Torrance, California; May 20, 1988.
- \_\_\_\_\_, 1988c. Field Data Submittal, Part 2, Remedial Investigative Work, Phase 2A, Montrose Site, Torrance, California, Volume One, August-September 1988, Dominguez Channel Sediment Survey and Sampling. Prepared for Montrose Chemical Corporation, Torrance, California; December 2, 1988.
- \_\_\_\_\_, 1988d. Field Data Submittal, Part 2, Remedial Investigative Work, Phase 2A, Montrose Site, Torrance, California, Volume Two, September 1988 Off-Site Soil Sampling. Prepared for Montrose Chemical Corporation, Torrance, California; December 2, 1988.
- \_\_\_\_\_, 1988e. Field Data Submittal, Phase 2, Remedial Investigative Work, Phase 2A, Montrose Site, Torrance, California, Volume Three, September 1988-November 1988, On-Site Soil Sampling. Prepared for Montrose Chemical Corporation, Torrance, California; November 1, 1988.

0577

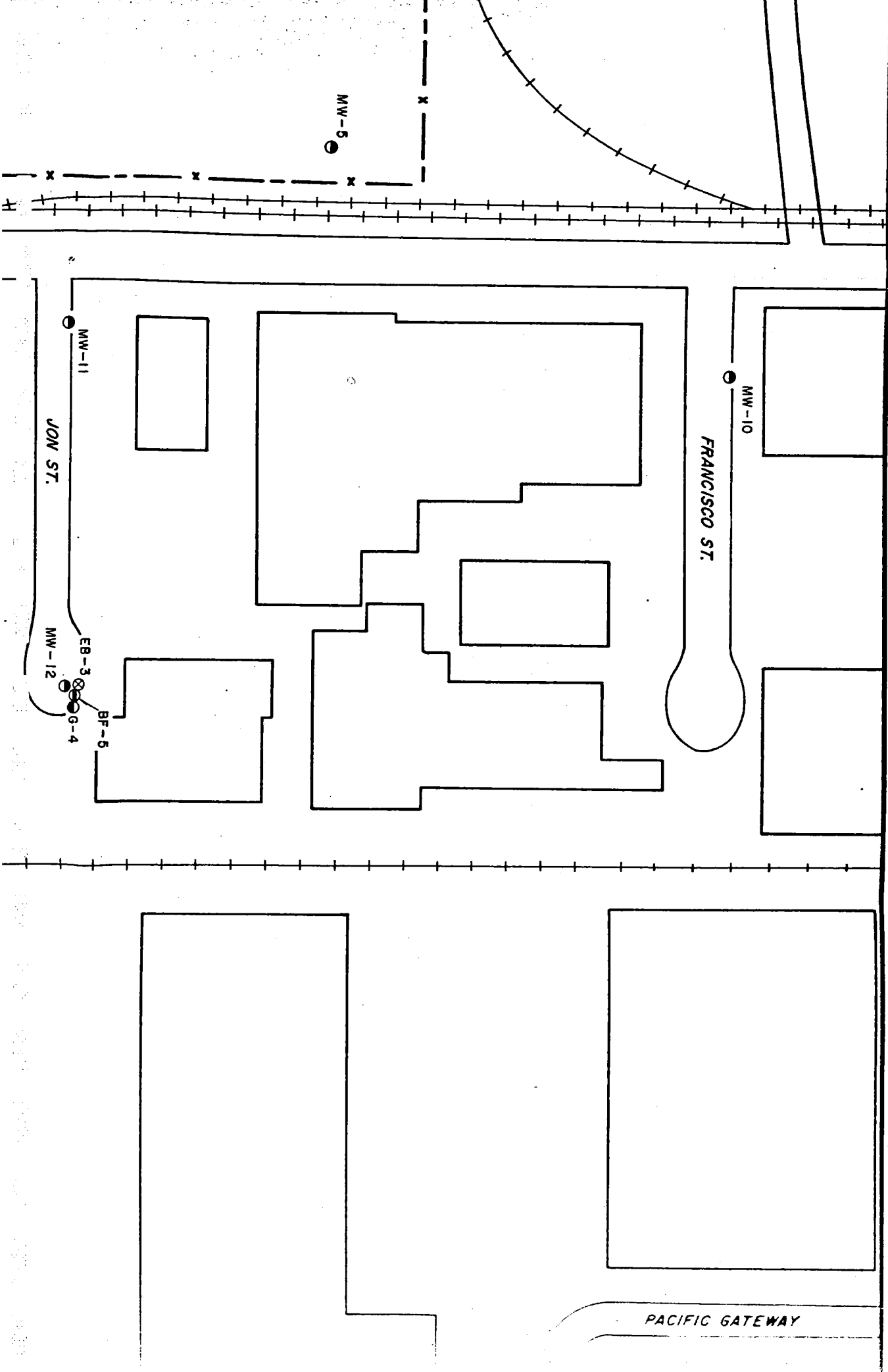
Illustrations

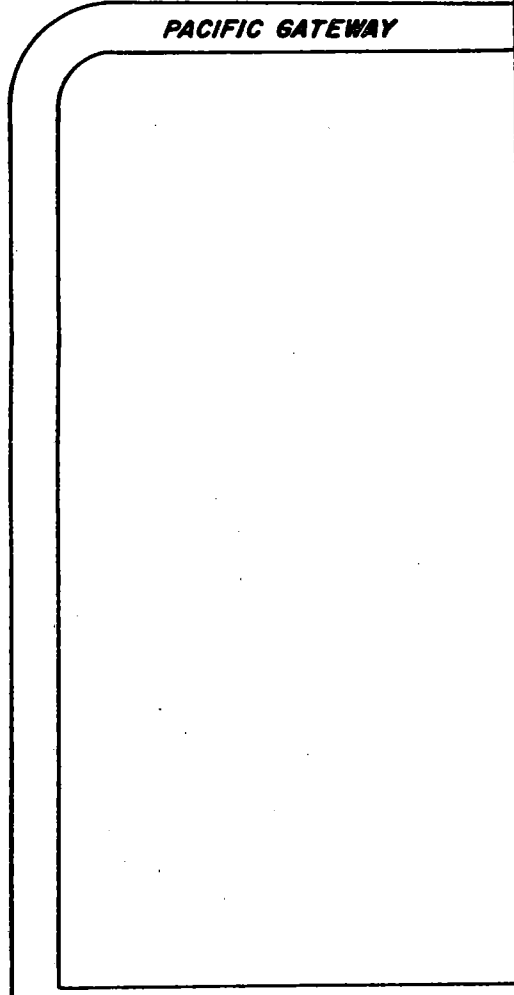
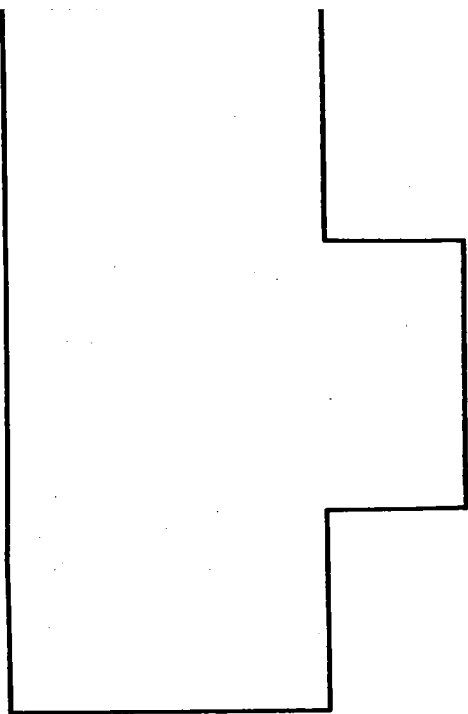
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**PACIFIC GATEWAY**

**MAGELLAN DRIVE**

05 & 01

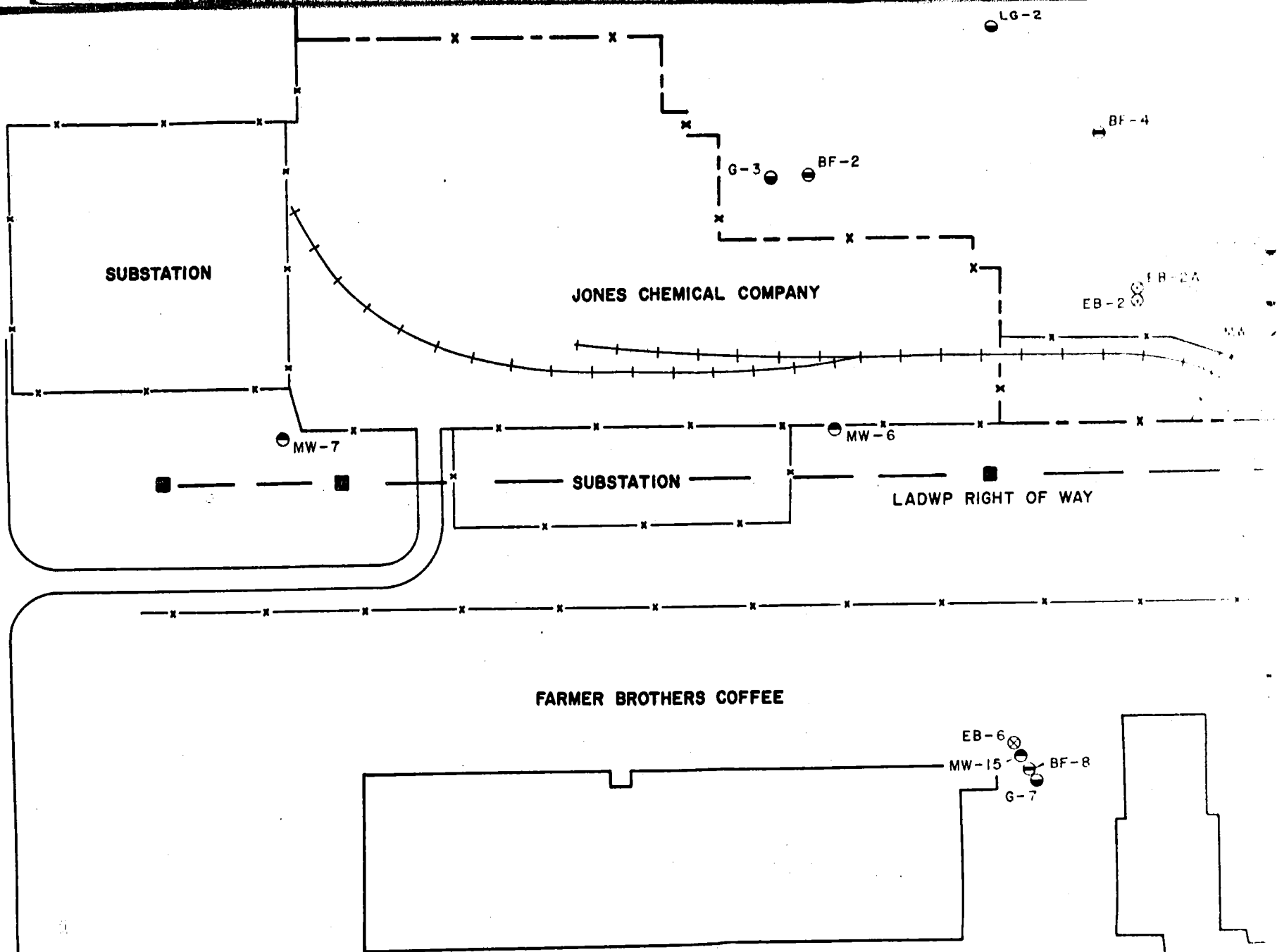
0581

# EXPLANATION

- x — — MONTROSE SITE FENCE LINE AND PROPERTY LINE
- — — MONTROSE SITE PROPERTY LINE
- x — FENCELINE
- ■ — TRANSMISSION LINE
- ==== PAVED ROAD
- — — UNPAVED ROAD
- + — + RAILROAD TRACKS
- MW-8  
⊙ PROPOSED UPPER BELLFLOWER AQUITARD MONITOR WELL
- EB-1  
⊗ EXPLORATORY BOREHOLE
- MW-1  
● UPPER BELLFLOWER AQUITARD MONITOR WELL
- BF-4  
● BELLFLOWER SAND MONITOR WELL
- G-2  
● GAGE AQUIFER MONITOR WELL
- DP-1  
○ UPPER BELLFLOWER AQUITARD MONITOR WELL - DEEP AND SHALLOW  
CONSTRUCTED BY DAMES AND MOORE, INC., 1984  
AND WOODWARD-CLYDE CONSULTANTS, INC., 1986 AND 1987

NUE

0 5 A 2



105831

JON ST.

AVENUE

NORMANDIE

DEL AMO BOULEVARD

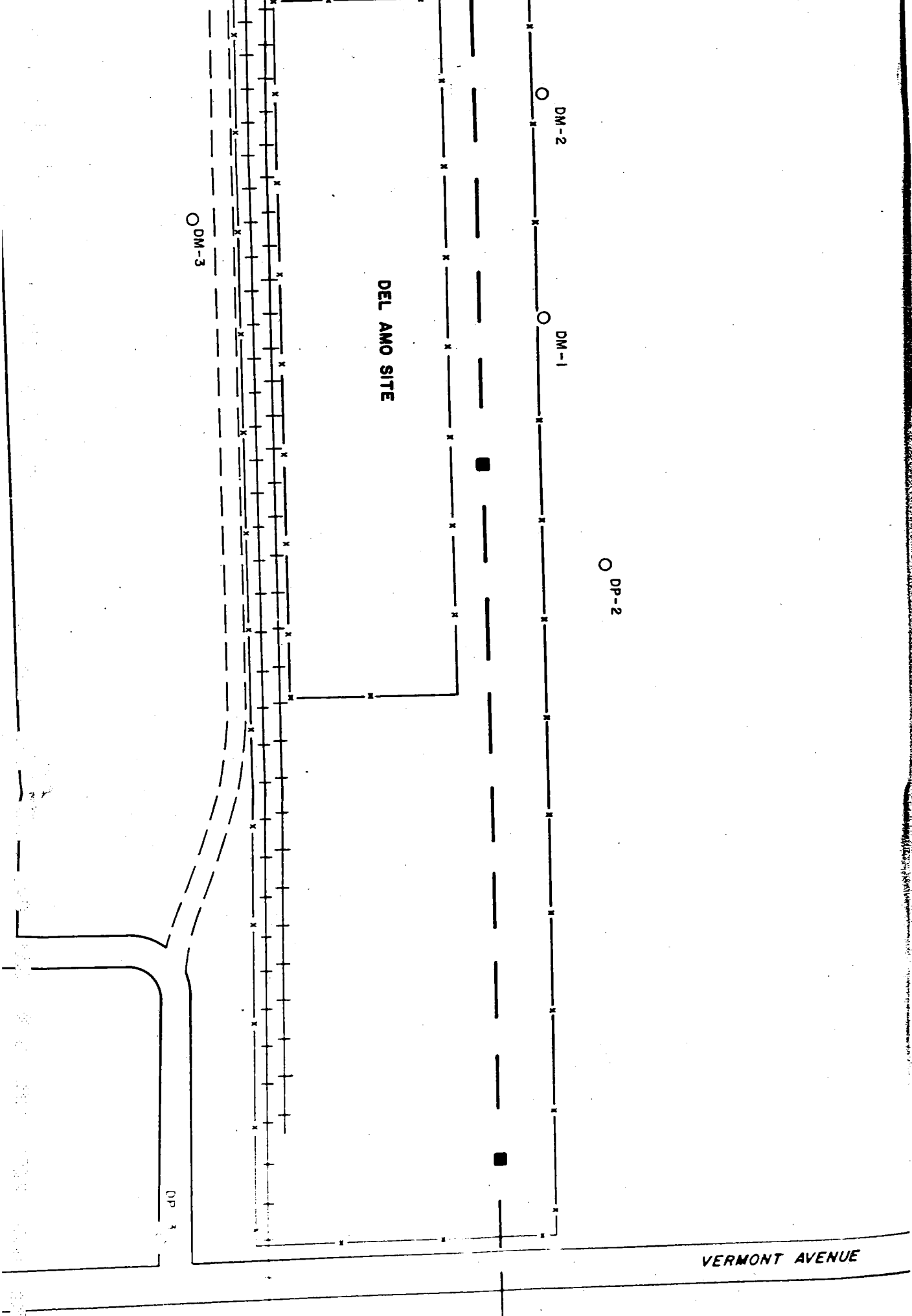
MW-11  
EB-3  
G-4  
MW-12

BF-6  
G-5  
MW-13  
EB-4

BF-7  
EB-5  
MW-14  
G-6

G-2  
EB-2A  
LG-1  
MW-10

05821



0585

VERMONT AVENUE

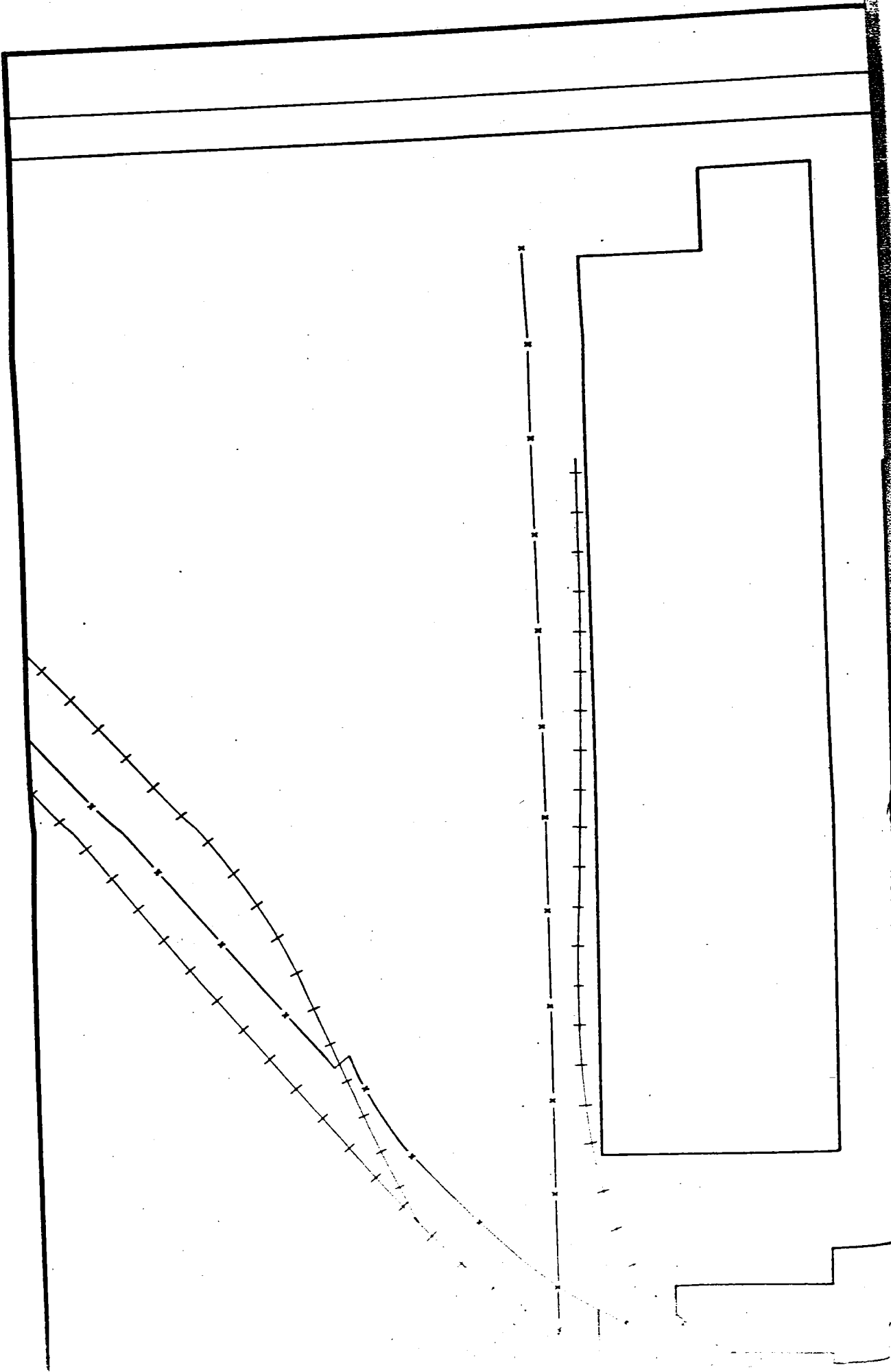
UPPER BELLFLOWER AQUITARD MONITOR WELL-DEE AND SON  
CONSTRUCTED BY DAMES AND MOORE, INC., 1984  
AND WOODWARD-CLYDE CONSULTANTS, INC., 1986 AND 1987

DP-3

BASE MAP COMPILED FROM THE FOLLOWING SOURCES:

1. 15 MINUTE TOPOGRAPHIC QUADRANGLE, 1964 PHOTOREVISED 1981, TORRANCE QUADRANGLE  
2. AERIAL PHOTOGRAPHY, CIRCA 1983.

0586





10587

204TH STREET

KENWOOD  
AVENUE

RAYMOND AVENUE

MILTON ST.

RAYMOND AVENUE

MILTON ST.

BUDLONG AVENUE

CATALINA STREET

BERENDO AVENUE

NEW HAMPSHIRE AVENUE

DG-2A

DP-1

DG-1

0588

0589

DG-1

NEW HAMPSHIRE AVENUE

2.) VERTICAL AERIAL PHOTOGRAPHY, CIRCA 1983.

3.) WOODWARD-CLYDE CONSULTANTS, INC., 1987, TASK 2 DRAFT REPORT, AERIAL PHOTOGRAPHY ACQUISITION AND INTERPRETATION, DEL AND HAZARDOUS WASTE SITE, TORRANCE, CALIFORNIA.

4.) O'MALLEY ENGINEERING CORPORATION, 1987, PART 2 DRAFT REPORT, DEL AND HAZARDOUS WASTE SITE, TORRANCE, CALIFORNIA.

0 100 200  
FEET

MONTROSE SITE AND VICINITY  
TORRANCE, CALIFORNIA

PHASE 2A  
MONITOR WELL LOCATIONS



HARGIS & ASSOCIATES, INC.  
Consultants in Hydrogeology  
San Diego, California

3/8/89

FIGURE 5

PREPARED BY: [blank] REVIEWED BY: [blank]

Appendix M



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APPENDIX M

LITHOLOGIC LOGS FOR EXPLORATORY BORINGS  
AND MONITOR WELLS

*Greg Hand  
DAS*

0591



HARGIS + ASSOCIATES, INC.

## APPENDIX M

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#### Table

M-1	LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A
M-2	LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3
M-3	LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4
M-4	LITHOLOGIC LOG FOR EXPLORATORY BORING EB-5
M-5	LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6
M-6	LITHOLOGIC LOG FOR MONITOR WELL MW-6
M-7	LITHOLOGIC LOG FOR MONITOR WELL MW-7
M-8	LITHOLOGIC LOG FOR MONITOR WELL MW-10
M-9	LITHOLOGIC LOG FOR MONITOR WELL MW-11
M-10	LITHOLOGIC LOG FOR MONITOR WELL MW-12
M-11	LITHOLOGIC LOG FOR MONITOR WELL MW-13
M-12	LITHOLOGIC LOG FOR MONITOR WELL MW-14
M-13	LITHOLOGIC LOG FOR MONITOR WELL MW-15
M-14	LITHOLOGIC LOG FOR MONITOR WELL BF-5
M-15	LITHOLOGIC LOG FOR MONITOR WELL BF-6
M-16	LITHOLOGIC LOG FOR MONITOR WELL BF-7
M-17	LITHOLOGIC LOG FOR MONITOR WELL BF-8
M-18	LITHOLOGIC LOG FOR MONITOR WELL BF-9
M-19	LITHOLOGIC LOG FOR MONITOR WELL G-4
M-20	LITHOLOGIC LOG FOR MONITOR WELL G-5
M-21	LITHOLOGIC LOG FOR MONITOR WELL G-6
M-22	LITHOLOGIC LOG FOR MONITOR WELL G-7
M-23	LITHOLOGIC LOG FOR MONITOR WELL LG-2

TABLE M-1

## LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

Date: October 28-31, 1988

Weather: Partly cloudy, 75°F, light wind from the west

Drill Rig: Ingersoll-Rand TH-100

Sample Method: Mud rotary wireline core and mud rotary cuttings, 5 1/2-inch O.D. core barrel

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	0-70 No samples collected. See lithologic log EB-2 (Hargis + Associates, February 2, 1987)
Wireline Core 70-75	R=5.0/5.0	NA	70-70.7 SAND (SP): Light olive brown, 2.5Y 5/4, slightly moist, dense, fine-grained, trace mica.
			70.7-70.9 INTERBEDDED SILT AND SILTY SAND (ML/SM): SILT is olive brown, 2.5Y 4/4, slightly moist, stiff, slightly plastic. SAND is dark grayish brown, 2.5Y 4/2, dense, slightly moist, fine-grained, trace mica.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

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TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 70-75			70.9-73.2 SAND (SP): Grayish brown, 2.5Y 5/2, slightly moist, dense, fine-grained, trace mica.
			73.2-73.4 CLAYEY SILT (ML): Olive brown, 2.5Y 5/4, slightly moist, stiff, slightly plastic.
			73.4-75 SAND (SP): Same as 70.9-73.2.  At 74.0 feet, orange iron oxide staining on bedding plane.
Wireline Core 75-80	R=5.0/5.0	NA	75-75.5 INTERBEDDED SILT AND SILTY SAND (ML/SM): Same as 70.7-70.9 with some shell fragments up to 1/4 inch.
			75.5-77.3 SILTY SAND (SM): Light olive brown, 2.5Y 5/4, slightly moist, dense, fine-grained sand, some silt, some shell fragments up to 1/4 inch.

1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

NA Not available

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TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 75-80			77.3-80.7 SILTY CLAY (CL): Mottled gray 10YR 5/1 and light brownish gray 2.5Y 6/2, slightly moist, stiff, slightly plastic, trace iron oxide staining.
Wireline Core 80-85	R=4.0-5.0	NA	80.7-81.2 SANDY SILT (ML): Grayish brown, 2.5Y 5/2, slightly moist, stiff, nonplastic, fine-grained sand.  At 81.1 feet, iron oxide stains.
			81.2-86.6 SAND (SP): Olive gray, 5Y 4/2, wet, dense, fine-grained, trace mica.  At 82.3 feet, SILTY CLAY (CL), 0.1 feet thick, iron oxide stains below silty clay.
Wireline Core 85-90	R=4.9/50	NA	86.6-87.8 SILTY SAND (SM): Olive, 5Y 4/3, wet, dense, fine-grained sand, some mica.  87.8-88.8 SAND (SP): Olive gray, 5Y 4/2, wet, fine-grained, trace silt and mica, laminated texture.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

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TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 85-90			88.8-89.9 CLAYEY SILT (ML): Olive-brown, 2.5Y 4/4, moist, stiff, slightly plastic.
			89.9-90 CLAYEY SILT AND SAND INTERBEDS (ML/SP): Same as 87.8-89.9 with 0.05 feet thick interbeds.
Wireline Core 90-95	R=5.0/5.0	NA	90-93.8 SANDY SILT (SM), CLAYEY SILT (ML), SILT (ML), AND SILTY SAND (SM) INTERBEDS: Fine-grained sand, some iron oxide staining throughout, 0.05 to 0.3-foot thick interbeds.
			93.8-95 SILTY SAND (SM): Gray, N5, wet, dense, fine-grained, some mica.
Wireline Core 95-100	R=5.0/5.0	NA	95-96 SAND (SP): Olive gray, 5Y 4/2, wet, fine-grained, trace silt and mica, laminated texture, occasional silty sand interbeds.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

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TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 95-100			96-97 SILTY SAND (SM): Gray, N5, wet, dense, fine-grained, some mica.
			97-98.5 SAND AND SILTY SAND INTERBEDS (SP/SM): Same as 95-97 feet.
			98.5-99.8 SAND (SP): Olive gray, 5Y 5/2, salt and pepper coloring, wet, dense, fine- grained, trace mica.
			99.8-100.2 CLAYEY SAND (SC): Dark gray with bluish tinge, N4, moist, dense, fine- grained.
Wireline Core 100-105	R=5.0/5.0	NA	100.2-102.8 SANDY CLAYEY SILT (ML): Dark gray, 5Y 4/1, moist, stiff, moderately plastic, fine-grained sand laminations throughout.
			102.8-107.7 SILTY SAND (SM): Light olive brown, 2.5Y 5/6, moist, dense, fine-grained sand, some shell fragments to 1/4 inch.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARCOB ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 105-110	R=5.0/5.0	NA	At 105-107.7 feet, dark gray, N4.  107.7-110 FOSSILIFEROUS SAND (SP): Light olive brown, 2.5Y 5/6, moist, dense, fine-grained sand, trace silt.  At 107.7 feet, cemented sand, 0.1 feet thick.
Mud Rotary Drilling 110-130	NA	NA	110-130 No samples collected. See EB-2 lithologic log (Hargis + Associates, February 2, 1987).
Wireline Core 130-135	R=5.0/5.0	NA	130-130.5 CLAYEY SILT (ML): Dark gray, 5Y 5/1, moist, stiff, moderately plastic.  130.5-130.7 SILTY SAND (SM): Gray 5Y 5/1, dense, fine-grained sand with trace medium grains.  130.7-132 SANDY SILT AND SILTY SAND INTERBEDS (ML/SM): Dark gray, 5Y 5/1, some clay.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.  
2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.  
NA Not available

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TABLE H-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 130-135			132-132.4 SILTY SAND (SM): Gray 5Y 5/1, moist, dense, fine-grained.
			132.4-133 CLAYEY SILT (ML): Dark gray, N4, moist, stiff, slightly plastic.
			133-133.3 SILTY SAND (SM): Same as 132-132.4.
			133.3-134 SAND (SP): Gray, 5Y 5/1, moist, dense, fine-grained, trace silt.
			134-134.5 SILTY SAND (SM): Same as 132-132.4.
Mud Rotary Cuttings 135-220	NA	NA	134.5-136 SAND (SP): Same as 133.4-134.
			136-140 SANDY SILT (ML): Olive gray, 5Y 4/2, dense, fine-grained sand, trace mica, slightly plastic, some orange mottling.
			140-142 SAND (SP): Gray, 5Y 5/1, dense, fine- grained, trace mica.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARCIS ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings 135-220			142-143 SANDY SILT (ML): Same as 136-140.
			143-170 SAND (SP): Gray, 5Y 5/1, dense, fine-grained, with trace medium-grained sand, trace silt.  At 155-165 feet, some medium-grained sand, predominantly milky, clear and gray with orange, black, and yellow-colored grains, angular to subangular, subdiscoidal to subprismoidal, some cemented aggregates, trace mica.
			170-180 SILTY SAND (SM): Dark gray, 5Y 4/1, fine-grained sand.  At 175-180 feet, increased silt content, some medium-grained sand, trace shell fragments, orange mottling.
			180-195 SAND (SP): Dark gray, 5Y 4/1, dense, fine-grained, trace medium-grained sand, trace shell fragments increasing percentage with depth, trace mica.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings 135-220			195-200 SANDY SHELLS (SP): Predominantly shells with well-graded sand, fine to coarse, whole shells.
			200-205 SILT (ML): Dark gray, 5Y 4/1, some fine-grained sand, some shells.
			205-210 SANDY SILT/SILTY SAND (ML/SM): Dark gray, 5Y 4/1, fine-grained sand.
			210-215 SANDY SILT (ML): Dark gray, 5Y 4/1, fine-grained sand, nonplastic to slightly plastic.
			215-220 SILT (ML): Dark gray, 5Y 4/1, trace fine-grained sand, slightly plastic.
Wireline Core 220-225	R=5.0/5.0	NA	220-220.7 CLAY (CL): Dark gray, 5Y 4/1, moist, stiff, moderately plastic.
			220.7-221.8 CLAY AND CLAYEY SAND INTERBEDS (CL/SC): Dark gray, 5Y 4/4.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 220-225			<p>221.8-222.8 SILTY SAND (SM): Dark gray, 5Y 4/1, moist, dense, fine-grained sand, some medium-grained sand.</p> <p>At 222.4 and 222.7 feet, silt beds, 0.02 feet thick.</p> <p>222.8-226.1 SAND (SP): Dark gray, 5Y 4/1, moist, dense, fine- to medium-grained sand, subangular to subrounded, subprismatic, trace silt.</p>
Wireline Core 225-230	R=4.6/5.0	NA	<p>226.1-230 SILTY SAND (SM): Same as 221.8 to 222.8 feet.</p> <p>At 226.1 feet, silt, 0.02 feet thick.</p> <p>At 227.3 feet, increased silt content.</p> <p>At 228.8-230 feet, decreased silt content, grain size increasing.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES



TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core/Mud Rotary Cuttings 230-235	R=0.0/5.0	NA	230-252.2 SAND (SP): Gray, 5Y 5/1, wet, dense, fine- to medium-grained, subangular to rounded and subprismatic grains, are predominantly milky and clear with some black and gray and trace orange and green.
Wireline Core/Mud Rotary Cuttings 235-240	R=0.0/5.0	NA	
Wireline Core 240-245	R=5.0/5.0	NA	
Wireline Core 245-250	R=4.2/5.0	NA	
Wireline Core 250-255	R=5.0/5.0	NA	252.2-252.3 SILTY SAND (SM): Dark gray, 5Y 4/1, moist, dense, fine-grained, some clay.
			252.3-254.4 CLAYEY SILT (ML): Gray, 5Y 5/1, stiff, occasional fine-grained sand interbeds, moderately plastic.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 255-259.8	R=4.8/4.8		254.5-259.8 SAND (SP): Gray, 5Y 5/1, moist, dense, medium- to coarse-grained, trace gravel up to 1.5 inches, rounded.  At 255 feet, silty clay, dark gray, moist, stiff, moderately plastic, 0.05 feet thick.  At 259-259.6, fine-grained sand with some medium grains.
Wireline Core 259.8-263.8	R=1.6/4.0		259.8-260.1 GRAVELLY SAND (SP): Gray, 5Y 5/1, dense, coarse-grained sand, gravel up to 1.5 inches, subangular to round, predominantly granitic and quartzite.  260.1-263.6 SILTY SAND (SM): Gray, 5Y 5/1, moist, dense, fine-grained sand, cemented.
Wireline Core 263.8-267	R=3.1/3.2	NA	263.8-264.1 GRAVELLY SAND (SP): Same as 259.8- 260.1.  264.1-264.6 SAND (SP): Gray, N4, moist, dense, fine-grained, some silt, cemented.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.  
2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.  
NA Not available

HARGIS - ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 263.8-267			264.6-265.3 GRAVELLY SAND (SP): Same as 259.8-260.1.  265.3-266.6 SAND (SP): Same as 264.1-264.6, but poorly cemented.
Wireline Core 267-270	R=1.9/3.0	NA	266.6-267.5 GRAVELLY SAND (SW): Gray, N4, moist, dense, fine to coarse sand, gravel up to 2 inches, subrounded to well-rounded, subdiscoidal to subprismoidal, granitic and quartzitic grains.  At 267.5 feet, pink, subrounded clast.  267.5-268.7 SAND (SP): Same as 265.3-266.6.
Wireline Core 270-275	R=4.4/5.0	NA	268.7-271.6 SAND (SW): Gray, N4, moist, dense, fine- to coarse-grained, predominantly medium-grained, subrounded to well-rounded, subdiscoidal to subprismoidal.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.  
2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.  
NA Not available

HARGIS - ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 270-275			271.6-272.5 SILTY SAND (SM): Dark gray, 2.5Y 4/0, moist, dense, fine-grained, trace mica.  272.5-272.7 SAND (SP): Dark gray, 2.5Y 4/0, moist, dense, coarse-grained.
Wireline Core 275-280	R=4.4/5.0		272.7-278.5 SAND (SP): Dark gray, 2.5Y 4/0, wet, dense, predominantly fine-grained with occasional medium to coarse grains, trace silt and mica.  At 275-278.5 feet, silt content increasing with depth.  At 276.8 feet, same gravelly sand.  At 276.5-276.7 feet, coarse sand and gravel-filled burrow, 3 x 1/2 inches, rounded clasts.  At 278.4 feet, coarse sand and gravel, 0.1 feet thick, subrounded to well-rounded.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 280-285	R=4.8/5.0	NA	278.5-293 SILTY SAND (SM): Gray, N/5, wet, dense, fine-grained, trace mica.  At 281.3 feet, 1-inch rounded quartzite clast.  At 282.2 feet, silt content increases.  At 283 feet, sandy silt bed, 0.05 feet thick.  At 284.6 feet, coarse sand and gravel up to 0.5 inches thick.
Wireline Core 285-290	R=4.7/5.0	NA	At 285.5-285.7 feet, gravelly sand, fine to coarse sand, gravel up to 1 inch.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Wireline Core 290-295	R=5.0/5.0	NA	293-295 SAND (SP): Light gray, N7, wet, dense, fine-grained.  At 294.1-294.3 feet, sandy silt, gray, N5.  At 294.3-295 feet, some mica.
Wireline Core 295-300	R=5.0/5.0	NA	295-327 SILTY SAND (SM): Dark gray, moist, dense, fine-grained sand, silt and sand interbeds from 1 to 3 inches thick throughout, trace mica.
Wireline Core 300-305	R=4.8/5.0	NA	
Mud Rotary Cuttings 305-330	NA	NA	327-342 SANDY SILT/SILTY SAND (ML/SM): Dark gray, 5Y 4/1, fine-grained with some medium-grained sand, well-rounded grains, black, white, clear, and orange in color.
Wireline Core 330-335	R=5.0/5.0	NA	

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated.  
OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-1 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-2A

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings 335-380	NA	NA	342-346 SANDY SILT (ML): Dark gray, 5Y 4/1, moist, dense, fine-grained sand, trace mica.
			346-352 SILTY SAND (SM): Same as 295-327.
			352-359 SANDY SILT (ML): Same as 342-346.
			359-364 SILTY SAND (SM): Same as 295-327.
			364-380 SANDY SILT (ML): Same as 295-327.

TOTAL DEPTH OF BOREHOLE: 380 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES

TABLE M-2

## LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

Date: November 5-7, 1988

Weather: Overcast, 60°F, light wind from the west

Drill Rig: Ingersoll-Rand TH-100

Sample Method: Mud rotary cuttings, 6 1/4-inch tricone bit

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hand Auger 0-3	NA	NA	0-4 CLAYEY SILT (ML): Very dark grayish brown, 10 YR 3/2, moist, firm, trace sand, moderately plastic.  At 3 to 4 feet, light olive brown, 2.5Y 5/4.
Mud Rotary Cuttings 4-10	NA	NA	4-23 SANDY SILT (ML): Light olive brown, 2.5Y 5/4, firm, fine-grained sand, nonplastic.  At 20-23 feet, light yellowish brown, 2.5Y 6/4, sand content increasing.
Mud Rotary Cuttings collected by drilling and circulating at 5- foot intervals 10-320			23-33 SILTY SAND (SM): Light yellowish brown, 2.5Y 6/4, dense, fine-grained sand.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS &amp; ASSOCIATES, INC.



TABLE M-2 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>33-35 SAND (SP): Pale yellow, 2.5Y 7/4, dense, fine-to medium-grained with trace coarse grains, discoidal to spherical and very angular to subrounded, distinctive angular pink grains.</p> <p>35-48 FOSSILIFEROUS SILTY SAND (SM): Pale olive, 5Y 6/4, dense, fine-grained sand with fine to coarse angular shell fragments.</p> <p>At 42-48 feet, very dense.</p> <p>48-55 SANDY SILT (ML): Light yellowish brown, 2.5Y 6/4, firm, fine-grained sand, nonplastic, some iron oxidation stains.</p> <p>55-59 SAND (SP): Fine-grained sand.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-2 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>59-93 SANDY SILT AND SILTY SAND INTERBEDS (ML/SM): Olive yellow and light yellowish brown, 2.5Y 7/8 and 2.5Y 6/4, fine-grained sand, some clay interbeds, sandy silt is nonplastic.</p> <p>93-98 SILTY SAND (SM): Light olive brown, 2.5Y 5/4, dense, fine-grained sand, occasional sandy silt interbeds, light olive brown, 2.5Y 5/4, micaceous.</p> <p>98-104 SANDY SILT (ML): Light olive gray, stiff, fine-grained sand, slightly plastic, silty sand interbeds, some shell fragments up to 1/4 inch.</p> <p>104-106 SILT (ML): Blue gray, stiff, trace fine sand, nonplastic.</p> <p>106-110 SANDY SILT (ML): Same as 98-104.</p> <p>110-112 SILT (ML): Same as 104-106.</p>

1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

NA Not available

HARGIS & ASSOCIATES, INC.

TABLE M-2 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>112-119 FOSSILIFEROUS SILTY SAND (SM): Pale olive, 5Y 6/3, fine-grained sand, abundant shell fragments, some iron oxide stains.</p> <p>119-120 SANDY SILT (ML)</p> <p>120-124 FOSSILIFEROUS SAND (SP): Light olive brown, 2.5Y 5/4, fine-grained sand with trace medium and coarse sand, abundant shell fragments, multicolored grains, orange, pink and red.</p> <p>124-131 SAND (SP): Pale yellow, 5Y 5/3, dense fine- to medium-grained, trace coarse sand, subdiscoidal to subprismatic and subangular to subrounded, multicolored grains, orange, maroon, white, black, yellow, red.</p> <p>131-137 SILT (ML): Light brownish gray, 2.5Y 6/2, firm to stiff, trace fine sand, nonplastic.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-2 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	137-141 SILTY SAND (SM): Pale olive, 5Y 6/3, fine-grained sand, some sandy silt and sand interbeds.
			141-153 SILT (ML): Light olive gray, stiff, slightly plastic, some light olive gray, sandy silt interbeds and dark brown, 2.5Y 3/3, clay interbeds.
			153-196 SAND (SP): Light olive gray, 5Y 6/2, dense, fine-grained, abundant mica.
			196-201 SANDY SILT (ML): Blue gray, dense, fine-grained sand, nonplastic.
			201-205 SAND (SP): Same as 153-196.
			205-209 FOSSILIFEROUS SAND: Blue gray, fine-grained sand, some silt, abundant unweathered gastropod and bivalve fragments.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-2 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	209-212 SAND/SILTY SAND (SP/SM): Blue gray, dense, fine-grained sand.
			212-214 FOSSILIFEROUS SAND (SP): Same as 205- 209.
			214-221 SILT (ML): Blue gray, trace fine- grained sand, nonplastic.
			221-226 SAND (SP): Fine-grained, some silt.
			226-240 CLAYEY SILT (ML): Dark blue gray, stiff to very stiff, plastic.
			240-249 CLAY (CL): Dark blue gray, very stiff, plastic.
			249-253 SANDY CLAY (CL): Dark blue gray, stiff, fine- to medium-grained, subdiscoidal to subprismoidal and subangular to subrounded, plastic.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-2 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	253-255 CLAYEY SAND (SC): Dark blue gray, dense, fine- to medium-grained, subdiscoidal to subprismatic, angular to subrounded.
			255-260 SAND (SW): Gray, 5Y 6/1, dense, fine to coarse, predominantly medium to coarse, trace silt, trace gravel to 1/2-inch, subprismatic and rounded, quartzitic chert, gneissic and granitic grains and pebbles.
			260-283 GRAVELLY SAND (SG): Gray, 5Y 6/11, dense, fine to coarse sand, predominantly coarse sand and gravel, some sandy silt interbeds.
			283-317 SANDY SILT AND SAND INTERBEDS (ML/SP): Sand silt is blue gray, firm to stiff, slightly plastic. Sand is olive gray, fine to coarse, predominantly medium-grained, subprismatic and rounded.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-2 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-3

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	317-320 SILT (ML): Blue gray, stiff nonplastic.

TOTAL DEPTH OF BOREHOLE: 320 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-3

## LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4

Date: November 10-11, 1988

Weather: Cloudy, 68°F, little or no wind

Drill Rig: Ingersoll-Rand TH-100

Sample Method: Mud Rotary Cuttings, 6 1/4" tricone bit

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings collected by drilling and circulating at 5- foot intervals 0-320	NA	NA	0-17      PROBABLE FILL MATERIAL
			0-15      CLAYEY SILT (ML): Dark grayish brown, 2.5Y 3/2, very stiff, trace fine- grained sand, moderately plastic.  At 0-5 feet, concrete and wood fragments.  At 5-15 feet, wood fragments.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS ASSOCIATES, INC.



TABLE M-3 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>17-39 SANDY SILT (ML): Light olive brown, 2.5Y 5/4, stiff, fine-grained sand, slightly plastic.</p> <p>At 27-28 feet, fine-grained sand.</p> <p>At 34-35 feet, shell fragments.</p>
			<p>39-51 FOSSILIFEROUS SAND AND FOSSILIFEROUS SILTY SAND (SP/SM): Olive, 5Y 4/3, dense, fine-grained sand, abundant shell fragments, fossiliferous sand has multicolored cemented grains.</p>
			<p>51-59 SANDY SILT (ML): Light olive brown, 2.5Y 5/4, firm to stiff, fine-grained sand, slightly plastic, trace mica, iron oxide stains.</p>
			<p>59-68 SILTY SAND (SM): Olive, 5Y 5/3, dense, fine-grained sand, frequent sandy silt interbeds, same as 51-59 feet.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS + ASSOCIATES, INC.

TABLE M-3 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	68-75 SAND (SP): Light olive gray, 5Y 6/2, dense, fine-grained, some silt.
			75-86 SANDY SILT (ML): Light yellowish brown, 2.5Y 6/4, stiff, fine-grained sand, slightly plastic, trace mica.
			86-90 SAND (SP): Olive brown, 2.5Y 4/4, dense, fine-grained, trace mica, trace shell fragments.
			90-100 SANDY SILT (ML): Light olive brown, 2.5Y 5/4, firm, fine-grained, nonplastic.
			100-113 CLAYEY SILT (ML): Olive brown, 2.5Y 4/3, firm, trace fine-grained sand, moderately plastic, trace mica.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-3 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	113-115 FOSSILIFEROUS SAND AND SILTY SAND (SP/SM): Fossiliferous sand contains multicolored well cemented sand grains, fine to medium, abundant shell fragments. Silty sand is olive, 5Y 5/4, fine-grained.
			115-125 FOSSILIFEROUS SAND AND SAND (SP): Fossiliferous sand same as 113-115; sand is olive, 5Y 5/4, fine-grained, trace mica, trace shell fragments.
			125-133 SANDY CLAYEY SILT (ML): Olive, 5Y 4/3, stiff, predominantly fine-grained sand, trace mica, trace shell fragments, iron oxide stains.
			133-139 SAND (SP): Blue gray, dense, fine-grained, some silt, trace mica.
			139-149 CLAYEY SILT (ML): Blue gray, stiff, trace fine-grained sand, moderately plastic.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.  
 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.  
 NA Not available



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TABLE M-3 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	149-200 SAND (SP): Blue gray, dense, fine-grained, some silt.  At 170-180 feet, trace mica.
			200-208 SAND (SP): Blue gray, dense, fine-grained, abundant shell fragments, frequent silty sand interbeds.
			208-210 SAND (SP): Same as above with frequent clayey silt interbeds.
			210-232 CLAYEY SILT (ML): Blue gray, stiff, trace fine-grained sand, moderately plastic.  At 216-218 feet, silty sand, blue gray, dense, fine-grained, trace mica.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-3 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>232-252 SAND (SP): Blue gray, dense, predominantly fine-grained with some medium-grained sand, subdiscoidal to spherical, subrounded to rounded, some silt, grains are predominantly quartz and mafics.</p> <p>At 241 feet, clayey silt.</p> <p>252-258 CLAYEY SILT (ML): Blue-gray, stiff, trace fine-grained sand, moderately plastic.</p> <p>258-295 GRAVELLY SAND (SG): Blue gray, dense, fine to medium sand, gravel up to 1/4-inch, subdiscoidal to spherical, subrounded to rounded, some silt, grains are predominantly quartz and mafics.</p> <p>At 260-265 feet, some silty sand.</p> <p>At 285-290 feet, some silty sand.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-3 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-4

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	295-305 SANDY SILT (ML): Blue gray, stiff, fine-grained sand, slightly plastic, some silty sand interbeds.
			305-320 CLAYEY SILT (ML): Blue gray, stiff, fine-grained sand, moderately plastic.

TOTAL DEPTH OF BOREHOLE: 320 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-4

## LITHOLOGIC LOG FOR EXPLORATORY BORING EB-5

Date: November 8-9, 1988

Weather: Partly cloudy, 70°F, no wind

Drill Rig: Ingersoll-Rand TH-100

Sample Method: Mud rotary cuttings, 6 1/4-inch tricone bit

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings collected by drilling and circulating at 5- foot intervals	NA	NA	0-20 FILL MATERIAL
			0-27 SILT (ML): Light olive brown, 2.5Y 5/4, very stiff, trace sand, some sandy silt, slightly plastic.  At 0-3 feet, olive brown, 2.5Y 4/4, nonplastic, some 1/4-inch granitic gravel.  At 10-20 feet, cuttings returning in 2- x 2- x 1/8-inch layers of silt.
			27-34 SANDY SILT (ML): Light yellowish brown, 2.5Y 6/4, firm, fine-grained sand, nonplastic.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-4 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-5

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	34-40 SILTY SAND (SM): Light olive brown, 2.5Y 5/6, fine-grained sand.
			40-45 FOSSILIFEROUS SAND AND FOSSILIFEROUS SILTY SAND (SP/SM): Olive, 5Y 5/4, Sand has multicolored cemented sand grains. Silty sand is fine-grained.
			45-52 SANDY SILT (ML): Light olive gray, 5Y 6/2, fine-grained sand, nonplastic.
			52-56 SILT (ML): Olive, 5Y 4/3, dense, fine-grained sand, slightly plastic.
			56-64 SANDY SILT (ML): Olive, 5Y 4/3, dense, slightly plastic.
			64-66 SILTY CLAY (CL): Light brown, 2.5Y 5/4, trace fine-grained sand, plastic, iron oxide stains.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-4 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-5

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	66-72 CLAYEY SAND (SC): Light olive gray, 5Y 6/2, fine-grained sand.
			72-78 INTERBEDDED SAND AND SILT (SP/ML): Sand is pale olive, 5Y 6/3, fine-grained, trace mica. Silt is light olive brown, 5Y 6/3, fine-grained sand, moderately plastic.
			78-82 CLAYEY SILT (ML): Light olive brown, 2.5Y 5/4, trace fine-grained sand, trace mica, moderately plastic.
			82-100 INTERBEDDED CLAYEY SILT, SAND SILT, AND SAND (ML/SP): Clayey silt is the same as 78-82 feet. Sandy silt is light olive brown, 2.5Y 5/4, fine-grained sand, trace mica, slightly plastic. Sand is olive, 5Y 5/3, fine-grained, trace mafics.  At 85-90 feet, no clayey silt interbeds.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-4 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-5

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	100-107 SILTY CLAY (CL): Dark gray, 2.5Y N/4, trace mica, plastic.
			107-113 FOSSILIFEROUS SAND: Light yellowish brown, 2.5Y 5/10, fine- to coarse-grained, coarse grains are cemented, fine-grained sands with shell fragments in the center.
			113-142 SANDY CLAYEY SILT (ML) WITH SILTY SAND INTERBEDS: Light olive brown, 2.5Y 5/4, stiff, fine-grained sand, slightly plastic, many silty sand interbeds.
			142-149 SILTY SAND (SM): Blue gray, dense, fine-grained sand.  At 143-146 feet, trace shell fragments.
			149-197 SAND (SP): Blue gray, fine-grained with some medium grains, subprismatic and subangular, some mica.

1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

NA Not available



HARGIS ASSOCIATES, INC.

TABLE M-4 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-5

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>197-199 FOSSILIFEROUS SAND (SP): Same as 149-197 with abundant shells and shell fragments, gastropods and bivalves.</p> <p>199-219 CLAYEY SILT (ML): Bluish gray, very stiff, trace fine sand, plastic, trace shells.</p> <p>219-246 SAND (SP): Blue gray, dense, fine- to medium-grained, some silt.</p> <p>At 223-246 feet, trace coarse sand, grain shape is subdiscoidal to subprismoidal, subangular to rounded.</p> <p>246-253 SANDY SILT (ML): Blue gray, fine- to medium-grained sand, nonplastic.</p> <p>253-259 SILTY SAND (SM): Olive, 5Y 5/4, fine- to medium-grained, subdiscoidal to subprismoidal, subangular to rounded.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-4 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-5

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>259-271 GRAVELLY SAND (SG): Sand is light olive gray, 7.5Y 6/2, very dense, fine- to coarse-grained, predominantly medium- to coarse-grained, gravel up to 1/4 inch, spherical and subrounded.</p> <p>271-281 INTERBEDDED SANDY SILT AND SAND (ML/SP): Sandy silt is blue gray, fine-grained, slightly plastic. Sand is light olive gray, 5Y 5/2, dense, medium- to coarse-grained, trace gravel, spherical and subrounded.</p> <p>281-320 SANDY CLAYEY SILT (ML): Blue gray, fine-grained sand, moderately plastic, trace mica, occasional sandy silt to silty sand interbeds.</p>

TOTAL DEPTH OF BOREHOLE: 320 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-5

## LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

Date: November 14-16, 1988

Weather: Partly cloudy, 65°F, 10 to 15 m.p.h. winds from west

Drill Rig: EB-6

Sample Method: Mud rotary cuttings, 6 1/4-inch tricone bit

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected by drilling and circulating at 5- foot intervals. 0-300	NA	NA	0-10 PROBABLE FILL MATERIAL
			0-10 CLAYEY SILT (ML): Very dark grayish brown, 2.5Y 3/2, stiff, trace fine- grained sand, trace mica, moderately plastic.  At 5-10 feet, some 1/2-inch gravel, asphalt-like particles.
			10-15 SILT WITH SANDY SILT INTERBEDS (ML): Brown, 10YR 5/3, stiff, trace fine- grained sand, nonplastic. Sandy silt is the same as silt but with a higher fine- grained sand content.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated.  
OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-5 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>15-20 CLAYEY SILT (ML): Brown, 10YR 5/3, stiff, trace fine-grained sand, trace mica, moderately plastic.</p> <p>20-25 SILT (ML): Same 10 to 15 feet.</p> <p>25-30 SAND WITH SANDY SILT INTERBEDS (SP): Brown, 10YR 5/3, fine-grained sand.</p> <p>30-48 SILTY SAND (SM): Olive, 5Y 4/4, fine-grained sand, nonplastic, trace mica.</p> <p>At 40-45 feet, trace shell fragments.</p> <p>48-50 SILTY SANDY CLAY (CL): Olive brown, 2.5Y 4/4, fine-grained sand, stiff, plastic, trace mica, trace shells.</p> <p>50-52 FOSSILIFEROUS SANDY SILT (ML): Olive, 5Y 4/4, fine-grained sand, stiff, nonplastic, abundant shell fragments.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



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TABLE M-5 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	52-62 SAND (SP): Olive gray, 5Y 5/1, dense, fine-grained sand, stiff, some sandy silt interbeds, nonplastic.
			62-73 SILTY SAND WITH SANDY SILT (SM/ML): Olive, 5Y 5/3, dense, fine-grained sand, frequent sandy silt interbeds, slightly plastic.
			73-86 FOSSILIFEROUS SANDY SILT (ML): Olive, 5Y 5/4, fine-grained sand, stiff, slightly plastic, abundant shell fragments.
			86-90 SANDY SILT: Light olive brown, 2.5Y 5/4, stiff, fine-grained sand, slightly plastic.
			90-95 SANDY SILT WITH INTERBEDDED CLAYEY SILT (ML): Sandy silt is the same as 86-90 feet. Clayey silt is olive brown, 2.5Y 4/4, very stiff, trace fine-grained sand, moderately plastic.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-5 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>95-103 FOSSILIFEROUS SILTY SAND (SM): Olive, 5Y 5/4, dense, fine-grained sand, nonplastic, abundant shell fragments.</p> <p>103-106.5 INTERBEDDED FOSSILIFEROUS SAND AND FOSSILIFEROUS SILTY SAND (SP/SM): Fossiliferous sand is dense, multicolored cemented grains, abundant shell fragments. Silty sand is pale olive, 5Y 6/3, dense, fine-grained sand.</p> <p>106.5-124 SAND (SP): Light olive gray, 5Y 6/2, dense, fine- to medium-grained, predominantly medium-grained sand, some coarse-grained sand, subdiscoidal to spherical and subrounded to rounded, abundant quartz, some mafics, trace shell fragments.</p> <p>124-126 SANDY SILT (ML): Olive, 5Y 5/6, firm, fine-grained sand, nonplastic.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.



TABLE M-5 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>126-130 SILTY SAND (SM): Light olive gray, 5Y 6/2, dense, fine-grained sand.</p> <p>130-137 SANDY SILT (ML): Blue gray, stiff, fine-grained sand, slightly plastic, trace shell fragments.</p> <p>137-140 INTERBEDDED SILTY SAND AND SILT (SM/ML): Silty sand is blue gray, dense, fine-grained. Silt is blue gray, stiff, nonplastic.</p> <p>140-188 SAND (SP): Blue gray, dense, fine-grained, some medium-grained sand, some sandy silt interbeds, some cementation.</p> <p>At 180 to 185 feet, trace shells.</p> <p>At 185 to 190 feet, some shells, gastropod and bivalves.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-5 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>188-194 FOSSILIFEROUS SAND (SP): Blue gray, fine-grained sand, abundant shell fragments of gastropods and bivalves, some intact shells, some silty sand interbeds.</p> <p>194-200 CLAYEY SILT (ML): Blue gray, stiff, trace fine-grained sand, moderately plastic.</p> <p>200-210 SAND (SP): Blue gray, dense, fine-grained, some clayey silt interbeds, same as 194 to 200 feet.</p> <p>210-215 CLAYEY SILT (ML): Same as 194 to 200 feet.</p> <p>215-220 SILTY SAND (SM): Gray, 5Y 6/1, dense, fine- to medium-grained sand, subdiscoidal to subprismoidal and subangular to subrounded.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-5 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	<p>220-240 SAND (SP): Multicolored grains, matrix is light gray, 5Y 7/2, dense, fine- to medium-grained, some coarse-grained sand, subprismatic to subdiscoidal and subangular to subrounded.</p> <p>240-255 SAND (SW): Same as above but fine- to coarse-grained.</p> <p>At 250 to 255 feet, some gravel.</p> <p>255-265 SANDY GRAVEL (GP): Multicolored grains, very dense, fine- to coarse-grained sand, gravel fragments broken by bit up to 1/4-inch long.</p> <p>265-268 COARSE SAND WITH SANDY SILT INTERBEDS (SP): Same as 240 to 255 feet but with sandy silt interbeds. Sandy silt is gray, 5Y 5/1, stiff, fine-grained, slightly plastic.</p>

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-5 (continued)  
LITHOLOGIC LOG FOR EXPLORATORY BORING EB-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	268-282 SANDY SILT WITH SANDY INTERBEDS (ML): Same as 265 to 268 feet, but predominantly sandy silt.
			282-285 SANDY SILT (ML): Gray, 5Y 5/1, stiff, fine-grained, slightly plastic, some fine sand interbeds.
			285-300 SILT (ML): Blue gray, stiff, trace, fine-grained sand, slightly plastic.

TOTAL DEPTH OF BOREHOLE: 300 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS & ASSOCIATES, INC.

TABLE M-6

## LITHOLOGIC LOG FOR MONITOR WELL MW-6

Date: November 16, 1988

Weather: Clear, warm, slight breeze from west

Drill Rig: CME 75

Sample Method: Drive sampler

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler, 10-11.2	5/10/14; R=1.2/1.5	10.5/1.2	10-11.2 SILT (ML): Light olive gray, 5Y 6/2, slightly moist, very stiff, some cemented nodules.
Hollow Auger Drive Sampler, 20-21.5	5/11/12; R=1.5/1.5	20-20.3/0.8 20.7/0.6	20-21.5 SILT (ML): Same as 10-11.2.
Hollow Auger Drive Sampler, 30-31.5	11/18/19; R=1.5/1.5	30-31.5/2.2	30-31.5 SAND (SP): Light yellow brown, 2.5Y 6/4, slightly moist, dense, fine- grained.
Hollow Auger Drive Sampler, 40-40.5	50; R=0.5/0.5	40-40.5/2.8	40-40.5 SAND (SP): Light yellow brown, 2.5Y 6/4, slightly moist, very dense, fine- grained.
Hollow Auger Drive Sampler, 45-46.5	17/27/29; R=1.5/1.5	45/2.2 46/3.2	45-46.5 SAND (SP): Light brownish gray, 2.5Y 6/2, to olive gray 5Y 6/3, slightly moist, very dense, fine-grained, trace mica.

1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES INC.

TABLE M-6 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler, 50-51.5	16/23/21; R=1.5/1.5	50-51/1.6	50-51.5 SAND (SP): Light olive gray, 2.5Y 6/2, moist, dense, fine silty sand interbeds, light olive brown, 2.5Y 5/4, 0.1-0.2 feet thick, iron oxide banding.
Hollow Auger Drive Sampler, 60-61.5	25/25/25; R=1.5/1.5	60-61.5/1.8	60-61.5 SAND (SP): Same as 50-51.5
Hollow Auger Drive Sampler, 63-64	29/50 for 5"; R=1.0/1.0	63-64/1.4	63-64 SAND (SP): Same as 50-51.5, except moist and very dense.  At 63.5-64, thin silt interbeds, yellow brown, 10YR 5/6.
Hollow Auger Drive Sampler, 65-66.5	19/27/39; R=1.5/1.5	65-66.5/0.5	65-66.5 SAND (SP): Light gray, 10YR 6/1, moist, very dense, fine-grained.
Hollow Auger Drive Sampler, 68-69.5	21/38/43; R=1.5/1.5	68-69.5/0.2	68-69.5 SAND (SP): Yellowish brown, 10YR 5/6, moist, very dense, fine-grained.  At 69.5, SAND (SP): Light brownish gray, 10YR 6/2, wet, dense, fine-grained, trace biotite.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm. HARGIS & ASSOCIATES, INC.

TABLE M-6 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-6

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 70.5-71.8	80 for 1', 50 for 0.25' R=0.3/1.3	70.5-71.8/8	70.5-71.8 SAND (SP): Pale brown, 10YR 6/3, wet, very dense, fine-grained, some biotite.

TOTAL DEPTH OF BOREHOLE: 85.0 Feet


- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.  HARGIS ASSOCIATES, INC.

TABLE M-7

## LITHOLOGIC LOG FOR MONITOR WELL MW-7

Date: November 17-18, 1988

Weather: NA

Drill Rig: CME 75

Sample Method: Drive Sampler

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 10-11.5	6/10/12; R=1.5/1.5	11-11.5/2.4	10-11.5 SILT (ML): Light olive brown, 2.5Y 5/4, moist, dense.
Hollow Auger Drive Sampler 20-21.5	11/21/22; R=1.5/1.5	20-21.5/3.5	20-21.5 SILTY SAND (SM): Light olive brown, 2.5Y 5/6, moist, dense, fine-grained sand.
Hollow Auger Drive Sampler, 30-31.5	12/19/22; R=1.5/1.5	30-31.5/2.2	30-31.5 SAND (SP): Light yellowish brown, 2.5Y 6/4, slightly moist, dense, fine- grained, some silt.
Hollow Auger Drive Sampler, 40-41.5	9/10/12; R=1.5/1.5	40-41.5/32	40-41.3 CLAYEY SILT (ML): Pale olive, 5Y 6/3, moist, dense, slightly plastic, orange oxide mottling throughout.  41.3-41.5 SANDY SILT (ML): Light brownish gray, 2.5Y 6/2, moist, dense, nonplastic, fine-grained sand.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



HARGIS &amp; ASSOCIATES, INC.



TABLE M-7 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-7

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler, 45-46.5	13/19/21; R=1.5/1.5	45-46.5/40	45-46.5 SILTY SAND (SM): Yellowish brown, 10YR 5/6, moist, dense, fine-grained, trace mica.
Hollow Auger Drive Sampler 50-51.5	12/17/21; R=1.5/1.5	50-51.5/>1000	50-51.5 SILTY SAND (SM): Light olive brown, 2.5Y 5/6, moist, dense, fine-grained, odoriferous, with thin silt interbeds. At 50 and 51.25, 0.1-0.2' thick, silt is olive, 5Y 5/3, stiff, moist, some clay, slightly plastic.
Hollow Auger Drive Sampler 60-61.5	16/32/41; R=1.5/1.5	60-61.5/1.4	60-61.5 SAND (SP): Grayish brown, 2.5Y 5/2-6/2, slightly moist, very dense, fine-grained, slight odor, trace mica.
Hollow Auger Drive Sampler, 65-66.5	21/29/34; R=1.5/1.5	65-66.5/14	65-65.5 SAND (SP): Light brownish gray, 2.5Y 6/2, slightly moist, very dense, fine-grained, trace mica, odiferous.
			65.5-65.8 SILT (ML): Light olive brown to light yellowish brown, 2.5Y 6/4-5/4, very stiff, odiferous.
			65.8-66.2 SAND (SP): Olive gray, 5Y 4/2, slightly moist, trace silt, odiferous.
		66.2-66.5	SILT (ML): Same as 65.5-65.8.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm. HARGIS + ASSOCIATES INC.
- NA Not available

TABLE M-7 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-7

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler, 70-71.5	37/42/36; R=1.5/1.5	70-71.5/30	70-71.5 SAND (SP): Light yellowish brown, 2.5Y 6/4, wet, dense, fine-grained, occasional medium grains, some shell fragments, trace mica, odoriferous.

TOTAL DEPTH OF BOREHOLE: 85.3 Feet

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

HARGIS ASSOCIATES, INC.

TABLE M-8

## LITHOLOGIC LOG FOR MONITOR WELL MW-10

Date: November 22, 1989  
 Weather: Clear, warm, no breeze

Drill Rig: CME 75  
 Sample Method: Drive sample

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 10-11.5	15/15/16; R=1.4/1.5	10.0-11.5/0.5	10.0-11.4 SILT (ML): Yellowish brown, 10YR 5/4, dry, hard, non- to slightly plastic, trace orange oxide stains, color is slightly mottled.
Hollow Auger Drive Sampler 20-21.5	12/18/23 R=1.5/1.5	20.0-21.5/0.6	20.0-21.5 CLAYEY SILT (ML): Olive brown, 2.5Y 4/4, slightly moist, stiff, slightly plastic, trace fine-grained sand.
Hollow Auger Drive Sampler 30-31.5	7/10/16; R=1.5/1.5	30.0-31.5/1.4	30-31.0 CLAYEY SILT (ML): Light olive brown, 2.5Y 5/4, slightly moist, very stiff, slightly plastic, trace fine-grained sand.  31.0-31.5 SILT (ML): Light olive brown, 2.5Y 5/4, slightly moist, stiff, nonplastic, trace fine-grained sand.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm. HARGIS & ASSOCIATES, INC.

TABLE M-8 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-10

DRILLING/SAMPLING METHOD	BLOW COUNTS; RECOVERY <sup>1</sup>	OVA <sup>2</sup> (ft/ppm)	DEPTH INTERVAL (feet) AND DESCRIPTION
Hollow Auger Drive Sampler 35-36.5	20/30/25; R=1.5/1.5	35.1-35.5/0.3 35.8-36.5/1.0	35.0-35.1 SILT (ML): Same as 31.0-31.5.  35.1-35.5 SAND (SP): Yellowish brown, 10YR 5/6, slightly moist, very dense, fine-grained sand, trace silt, trace mica.  35.5-36.5 SAND (SP): Same as 35.1-35.5 except very pale brown, 10YR 7/3.
Hollow Auger Drive Sampler 40-41.5	12/24/26; R=1.5/1.5	40.5-40.9/0.3 40.9-41.5/0.3	40.0-40.2 SAND (SP): Very pale brown, 10YR 7/3, slightly moist, very dense, fine-grained, trace silt, trace mica.  40.2-40.5 SANDY SILT (SM): Light yellowish brown, 10YR 6/4 to gray 10YR 6/1, slightly moist, stiff, fine-grained sand, nonplastic, trace brown oxide stains.  40.5-40.9 FOSSILIFEROUS SAND (SP): Very pale brown, 10YR 8/3, slightly moist, very dense, fine to medium sand, subangular to subrounded, fossils are angular, 1/4" in size.  40.9-41.5 SAND (SP): Brownish yellow, 10YR 6/8, slightly moist, dense, some silt, trace shell fragments.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm. HARGIS & ASSOCIATES, INC.

TABLE M-8 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-10

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 50-51.5	19/24/32; R=1.5/1.5	50-51.4/0.6 51.4-51.5/0.2	50.0-51.4 SANDY SILT (SM): Yellowish brown, 10YR 5/4, slightly moist, very stiff, fine-grained sand, nonplastic.  51.4-51.5 SAND (SP): Light brownish gray, 10YR 6/2, slightly moist, very dense, fine-grained, some silt, trace mica.
Hollow Auger Drive Sampler 60-61.5	23/24/47; R=1.5/1.5	60.0-61.5/0.2	60.0-61.5 SAND (SP): Light brownish gray, 2.5Y 6/2, slightly moist, very dense, fine-grained, trace mica, some silt.
Hollow Auger Drive Sampler 65-66	39/50; R=0.8/1.0	65-66/1.0	65-65.8 SAND (SP): Light brownish gray, 2.5Y 6/2, moist, very dense, fine- grained with some medium-grained sand, trace silt, varicolored grains.  At 65.8, very moist.

TOTAL DEPTH OF BOREHOLE: 83 Feet

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm. HARGIS & ASSOCIATES, INC.

TABLE M-9

## LITHOLOGIC LOG FOR MONITOR WELL MW-11

Date: November 23, 1988

Weather: Cool, overcast, wind from west at 3-5 mph

Drill Rig: CME 75

Sample Method: Drive Sampler

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 10-11.5	9/12/10; R=1.5/1.5	10-11.5/1	10-11 SILTY SAND (SM): Light olive brown, 2.5Y 6/4, slightly moist, medium dense, fine-grained sand.  11.0-11.5 SILT (ML): Light olive brown, 2.5Y 6/4, firm, slightly moist, nonplastic, trace fine-grained sand.  At 11.25 feet, trace black organic material.
Hollow Auger Drive Sampler 20.0-21.5	8/13/21; R=1.5/1.5	20-21.5/1.8	20-21.5 CLAYEY SILT (ML): Light olive brown, 2.5Y 6/4, hard, slightly moist, slightly plastic, trace fine sand, occasional 1/4" cemented nodule.
Hollow Auger Drive Sampler 30-31.5	20/24/28; R=1.5/1.5	30-31.5/1.5	30-31.5 SILTY SAND (SM): Light olive brown, 2.5Y 5/4, very dense, slightly moist, fine-grained, trace orange oxide mottling.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm. HARGIS & ASSOCIATES, INC.

TABLE M-9 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-11

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 35-36.5	11/22/28; R=1.5/1.5	35-36.5/0.5	35-36.5 SILTY SAND (SM): Olive gray, 5Y 5/2, slightly moist, dense, fine-grained.  At 36.5, hard cemented nodule.
Hollow Auger Drive Sampler 40-41.5	19/30/35; R=0.5/1.5	40-40.5/1.0	40.0-40.5 SILTY SAND (SM): Same as 35-36.5 except very dense.
Hollow Auger Drive Sampler 45-46.5	12/21/30; R=1.5/1.5	46-46.3/0.5 46.3-46.5/0.5	45.0-45.05 SILTY SAND (SM): Same as 35-36.5. 45.05-46.3 SILTY SAND (SM): Light olive brown, 2.5Y 5/6, slightly moist, very dense, fine-grained, with occasional cemented nodule. 46.3-46.5 FOSSILIFEROUS SAND (SP): Yellowish brown, 10YR 5/6, slightly moist, very dense, fine- to medium-grained, fossils are angular, up to 1/4" in diameter, with occasional cemented nodule.
Hollow Auger Drive Sampler 50-51.5	15/26/22; R=1.5/1.5	50-51.5/25	50-51.5 SILTY SAND (SM): Olive brown, 2.5Y 5/4, mottled with gray and orange, slightly moist, dense, fine-grained, trace mica, with some thin silt interbeds.


- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.  HARGIS & ASSOCIATES

TABLE M-9 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-11

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 60-61.5	21/39/50; R=1.5/1.5	60-61.5/1.3	60-61 SILTY SAND (SM): Grayish brown, 2.5Y 5/2, slightly moist, very dense, fine-grained sand, trace mica, some black laminae present in sand.  At 61.0 orange oxide staining (0.02').
			61-61.5 SAND (SP): Light brownish gray, 2.5Y 6/2, slightly moist, very dense, fine-grained.
Hollow Auger Drive Sampler 65-66.5	34/43/50; R=1.5/1.5	63.3-64.3/150 65-66.3/45	65-66.5 SILTY SAND (SM): Light olive brown, 2.5Y 5/4, very dense, fine-grained, trace mica, very moist at 65.5.
Hollow Auger Drive Sampler 83.3-84.3	50/50; R=1.0/1.0		83.3-84.3 SILTY SAND INTERBEDDED WITH CLAYEY SILT (SM/ML): Silty sand is olive gray, 5Y 5/2, very dense, wet, fine-grained, some orange oxide staining. Clayey silt is olive, 5Y 4/3, moist, stiff, slightly plastic.
Hollow Auger Drive Sampler 85-85.5	50 R=0.5/0.5		85-85.5 SILTY SAND INTERBEDDED WITH CLAYEY SILT (SM/ML): Same as 83.3-84.3 feet.

TOTAL DEPTH OF BOREHOLE: 85.5 Feet

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm. HARGIS & ASSOCIATES, INC.



TABLE M-10

## LITHOLOGIC LOG FOR MONITOR WELL MW-12

Date: November 19, 1988  
 Weather: Clear, 62°F, variable breeze

Drill Rig: CME 75  
 Sample Method: Drive Sampler

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
The lithology for MW-12 is presented in the lithologic log for exploratory boring EB-3. The lithologic log for exploratory boring EB-3 is reported in this appendix, Table M-2. The following is the detailed lithology obtained from drive samples collected while drilling the monitor well.			
Hollow Auger Drive Sampler 45.0-46.5	10/18/24: R=1.5/1.5	45.0-46.5/0.0	45.0-46.5 SILT (ML): Light olive brown, 2.5Y 5/4, slightly moist, hard, with 0.01" sand interbeds, light olive brown, slightly moist, dense, fine-grained.
Hollow Auger Drive Sampler 68.0-69.0	98 for 1 foot; R=1.0/1.0		68.0-69.0 SAND (SP): Dark yellowish brown 10YR 4/6, wet, very dense, fine-grained, trace silt, some medium grains.

TOTAL DEPTH OF BOREHOLE: 85 Feet


- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.  HARGIS & ASSOCIATES, INC.

TABLE M-11

## LITHOLOGIC LOG FOR MONITOR WELL MW-13

Date: November 14-15, 1988

Weather: Cool, cloudy, wind from west at 10-15 mph

Drill Rig: CME 75

Sample Method: Drive Sampler

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
The lithology for MW-13 is presented in exploratory boring EB-4. The lithologic log for exploratory boring EB-4 is reported in this appendix, Table M-3. The following is the detailed lithology obtained from drive samples collected while drilling the monitor well.			
Hollow Auger Drive Sampler 45.0-46.5	29/27/26; R=1.4/1.5	45.0-46.4/0	45.0-46.1 FOSSILIFEROUS SAND (SP): Olive brown, 2.5Y 4/4, slightly moist, very dense, fine-grained, fossils are oyster fragments, with occasional cemented nodules.
			46.1-46.4 SILTY SAND (SM): Light gray, 2.5Y 7/0, slightly moist, dense, fine-grained with occasional medium-grained, trace mica.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE M-11 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-13

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 60-61	39/50; R=1.0/1.0	60-61/0	60-60.25 SILT (ML): Olive, 5Y 4/3 to light olive brown, 2.5Y 5/4, slightly moist, firm, trace fine-grained sand, nonplastic.  60.25-61 SAND (SP): Light brownish gray, 10Y 6/2, slightly moist, dense, fine-grained, trace mica.
Hollow Auger Drive Sampler 63.5-64.4	39/50 for 5"; R=.9/.9		63.5-64.4 SAND (SP): Same as 60.25-61, with some silt interbeds, sand is slightly coarse.
Hollow Auger Drive Sampler 65.0-65.5	50; R=0.5/0.5	65-65.5/28	65-65.5 SAND (SP): Same as 63.5-64.4 trace mica.
Hollow Auger Drive Sampler 68-69.5	14/24/26; R=1.5/1.5	68-69.5/70	68-69.5 SAND (SP): Light olive gray, 5Y 6/2, wet, dense, fine-grained, trace silt, trace mica.  At 69.4 SILT (ML): Olive, 5Y 4/4, moist, firm, nonplastic.
Hollow Auger Drive Sampler 70.25-71.75	5/16/31; R=1.5/1.5	70.25-71.75/180	70.25-71.75 SAND (SP): Light olive gray, 5Y 6/2, wet, dense, fine-grained, trace mica.

TOTAL DEPTH OF BOREHOLE: 80.5 Feet

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

TABLE M-12

## LITHOLOGIC LOG FOR MONITOR WELL MW-14

Date: November 20, 1988

Weather: Clear, 70°F, slight breeze from west

Drill Rig: CME 75

Sample Method: Drive Sampler

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			The lithology for MW-14 is presented in exploratory boring EB-5. The lithologic log for exploratory boring EB-5 is reported in this appendix, Table M-4. The following is the detailed lithology obtained from drive samples collected while drilling the monitor well.
Drive Sampler 42-43.5	9/12/16; R=1.5/1.5	42.5/0.5	42.0-42.5 SAND (SP): Yellowish brown, 10YR 5/4, slightly moist, dense, fine-grained.  42.5-43.5 CLAYEY SILT (ML): Olive, 5Y 5/3, slightly moist, stiff, slightly plastic, some silty sand interbeds 0.1 feet thick, dark yellowish brown, 10YR 4/6, slightly moist, dense, trace mica, some orange oxide staining.
Drive Sampler 63.0-65.0	35/45/34/- 42; R=2.0/2.0	62-63.5/0.1	63.0-65.0 SAND (SP): Light brownish gray, 2.5Y 6/2, slightly moist, very dense, fine-grained, trace mica, trace silt, increase in moisture at 64.8 feet.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

TABLE M-12 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-14

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Drive Sampler 65-66.5	16/29/34; R=1.5/1.5	65-66.5/1.2	65-66.5 SAND (SP): Grayish brown, 2.5Y 5/2, moist; dense, fine-grained, trace mica, trace silt.

TOTAL DEPTH OF BOREHOLE: 80.0 Feet

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated.

TABLE M-13

## LITHOLOGIC LOG FOR MONITOR WELL MW-15

Date: November 21, 1988

Weather: Clear, warm, slight breeze from west

Drill Rig: CME 75

Sample Method: Drive Sampler

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 45.0-47.0	18/22/25/- 28; R=2.0/2.0	45-47/0.4	45.0-47.0 SAND (SP): Yellowish brown 10YR 5/6, slightly moist, dense, fine-grained, some silt, orange oxide staining, white calcareous inclusions.

At 46.7, hard cemented nodules.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

TABLE M-13 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL MW-15

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Hollow Auger Drive Sampler 62.0-64.0	24/37/42/- 62; R=1.8/2.0	62-63.8/0.1	62.0-63.8 SAND (SP): Light brownish gray, 2.5Y 6/2, slightly moist, very dense, trace mica, fine-grained, some 0.02" thick silt interbeds.  At 63.2-63.4 feet, SILTY CLAY (CL): Olive 5Y 5/3, slightly moist, stiff, moderately plastic.  At 63.7 feet, SILT (ML): Olive 5Y 5/3, slightly moist, stiff, moderately plastic, some fine sand, 0.05' thick.
Hollow Auger Drive Sampler 65-66.5	17/27/37; R=1.5/1.5	65-66.5/0.3	65-65.25 SILT (ML): Same as at 63.7. 65.25-66.1 SAND (SP): Olive gray, 5Y 5/2, moist, very dense, fine-grained, trace mica. 66.1-66.5 SILT and SAND INTERBEDS (ML/SP) : Same as 65-65.25 and 65.25-66.1.

TOTAL DEPTH OF BOREHOLE: 83.0 Feet

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

TABLE M-14

## LITHOLOGIC LOG FOR MONITOR WELL BF-5

Date: January 12-14, 1989  
 Weather: Clear, cool, no wind

Drill Rig: Gardner-Denver  
 Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	With the exceptions listed below, the lithology observed at monitor well BF-5 is similar to the lithology observed at exploratory boring EB-3. The lithologic log for exploratory boring EB-3 is reported in this appendix, Table M-2.
			35-45 LOST CIRCULATION ZONE
			35-40 SANDY SILT/SILTY SAND (ML/SM): Pale olive, 5Y 6/4, trace gravel, angular to subangular, 1/4-inch in size, some angular shell fragments.

TOTAL DEPTH OF BOREHOLE: 135 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



TABLE M-15

## LITHOLOGIC LOG FOR MONITOR WELL BF-6

Date: December 1-3, 1988

Weather: Overcast, cool 62°F, light breeze from the west

Drill Rig: Gardner Denver

Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	With the exceptions noted below, the lithology observed at monitor well BF-6 is similar to the lithology observed at exploratory boring EB-4. The lithologic log for exploratory boring EB-4 is reported in this appendix, Table M-3.
			75-80 GRAVELLEY CLAYEY SILT (ML): Light olive brown, 2.5Y 6/4, firm, plastic, gravel is 1/4 to 1/2 inches.

TOTAL DEPTH OF BOREHOLE: 132 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-16

## LITHOLOGIC LOG FOR MONITOR WELL BF-7

Date: December 7-9, 1988

Weather: Clear, warm, light wind from the west

Drill Rig: Gardner Denver

Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	With the exceptions noted below, the lithology observed at monitor well BF-7 is similar to the lithology observed at exploratory boring EB-5. The lithologic log for exploratory boring EB-5 is reported in this appendix, Table M-4.
			106-109 INTERBEDDED SANDY SILT AND SILT (ML): Sandy silt is olive, 5Y 3/4, fine-grained sand, moderately plastic. Silt is dark gray, 2.5Y N/4, trace sand, fine-to medium-grained, moderately plastic.
			109-110 FOSSILIFEROUS SAND (SP): Light olive brown, 2.5Y 5/4, fine-grained sand, abundant angular shell fragments up to 1/4 inch.
			110-111.5 SANDY SILT (ML): Same as 106-109 feet.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-16 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL BF-7

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	111.5-115 FOSSILIFEROUS SAND (SP): Olive yellow, 5Y 6/6, fine-grained sand, calcareous cemented fragments up to 1/2 inch, abundant shell fragments, predominantly bivalves.  At 112-114 feet, some silt.  115-117 CLAY (CL): Olive, 5Y 5/3, stiff, plastic.

TOTAL DEPTH OF BOREHOLE: 118.5 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-17

## LITHOLOGIC LOG FOR MONITOR WELL BF-8

Date: January 4-6, 1989

Weather: Cloudy, light rain, cool strong wind from south

Drill Rig: Gardner Denver

Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	The lithology observed at monitor well BF-8 is similar to the lithology observed in exploratory boring EB-6. The lithologic log for exploratory boring EB-6 is reported in this appendix, Table M-5.

TOTAL DEPTH OF BOREHOLE: 126 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
  - 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-18

## LITHOLOGIC LOG FOR BF-9

Date: December 21, 1988 and January 3, 1989  
 Weather: Clear, cool, slight breeze from west

Drill Rig: Gardner Denver  
 Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals with drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod between 0 and 95 feet bls. Mud rotary cuttings collected at 2- to 5-foot intervals with drilling interrupted at 2- to 5-foot intervals from 95 to 09 feet bls and 126-129 feet bls.	NA	NA	1-10 CLAY: Dark brown, 7.5YR 3/2, stiff, plastic with some coarse concrete fragments.
			10-35 SILT TO SANDY SILT (ML): Tan, stiff, slightly to moderately plastic, fine-grained.
			35-45 FOSSILIFEROUS SAND (SP): Light olive brown, 2.5Y 5/4, dense, fine-grained.
			45-70 SILTY SAND/SAND (SM/SP): Light olive brown, 2.5Y 5/4, dense, fine-grained, with some silt interbeds.
			70-80 SILT (ML): Light olive brown, 2.5Y 5/4, trace sand, slightly plastic.
			80-90 FOSSILIFEROUS SANDY SILT (SM): Light brown, stiff, slightly plastic, fine-grained, fossils are angular, coarse-grained.

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-18 (continued)  
LITHOLOGIC LOG FOR BF-9

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	90-100 FOSSILIFEROUS SANDY SILT (SM): Same as 80-90, increasing silt, trace sand. 100-108.5 SILT (ML): Light brown, 7.5 YR 6/4, trace sand, some fossils. 108.5-128 SAND (SP): Pale olive, 5Y 6/3, dense, fine-grained sand, coarsening. 128-129 SILT (ML): Olive, 5Y 5/3, stiff, nonplastic.

TOTAL DEPTH OF BOREHOLE: 129 Feet

- 1 Blow counts per 0.5 foot interval using a standard penetrometer split-tube sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-19

## LITHOLOGIC LOG FOR MONITOR WELL G-4

Date: January 15-17, 1989  
Weather: Clear, cool, no wind

Drill Rig: Gardner Denver  
Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	With the exceptions listed below, the lithology observed at monitor well G-4 is similar to the lithology observed at exploratory boring EB-3. The lithologic log for exploratory boring EB-3 is reported in this appendix, Table M-2.
			35-45 GRAVELLY SILT (ML): Slightly plastic silt, gravel is subangular to angular, 1/4 to 3/4 inch, predominantly 1/2 inch, metavolcanics and quartz.
			155-160 SILTY SAND (SM): Blue gray, fine-grained sand.

TOTAL DEPTH OF BOREHOLE: 195 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-20

## LITHOLOGIC LOG FOR MONITOR WELL G-5

Date: December 4-6, 1988

Weather: Clear, warm, light wind from the west

Drill Rig: Gardner Denver

Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	With the exceptions noted below, the lithology observed at monitor well G-5 is similar to the lithology observed at exploratory boring EB-4. The lithologic log for exploratory boring EB-4 is reported in this appendix, Table M-3.
			20-25 CLAYEY SAND (SC): Olive, 5Y 4/3, fine to medium sand, trace silt, trace gravel, trace mica.
			25-30 SAND (SP): Pale yellow, 2.5Y 7/4, fine- to medium-grained, subdiscoidal and subangular.

TOTAL DEPTH OF BOREHOLE: 193 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available



TABLE M-21

## LITHOLOGIC LOG FOR MONITOR WELL G-6

Date: December 10-12, 1988

Weather: Clear, warm, light wind from the west

Drill Rig: Gardner Denver

Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	The lithology observed at monitor well G-6 is similar to the lithology observed in exploratory boring EB-5. The lithologic log for exploratory boring EB-5 is reported in this appendix, Table M-4.

TOTAL DEPTH OF BOREHOLE: 192 Feet

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-22

## LITHOLOGIC LOG FOR MONITOR WELL G-7

Date: January 9-11, 1989  
Weather: NA

Drill Rig: Gardner Denver  
Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals. Drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rod.	NA	NA	The lithology observed at monitor well G-7 is similar to the lithology observed in exploratory boring EB-6. The lithologic log for exploratory boring EB-6 is reported in this appendix, Table M-5.

TOTAL DEPTH OF BOREHOLE: 181 Feet

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

TABLE M-23

## LITHOLOGIC LOG FOR MONITOR WELL LG-2

Date: December 18, 1988

Weather: Partly cloudy, cool, light wind from the west

Drill Rig: Gardner Denver

Sample Method: Mud Rotary Cuttings

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud rotary cuttings collected at 5-foot intervals with drilling interrupted at 20-foot intervals to circulate out cuttings and to add drill rods between approximately 0 and 130 feet bls and 140 to 195 feet bls. Mud rotary cuttings collected at 5-foot intervals with drilling interrupted at 5-foot intervals between 130 and 140 feet bls and 195 to 207 feet bls.	NA	NA	0-30 CLAYEY SILT (ML).
			30-35 SILTY SAND (SM): Fine-grained.
			35-40 SAND (SP): Fine-grained.
			40-50 FOSSILIFEROUS SAND (SP): Fine-grained, some silt, angular shell fragments.
			50-73 SAND (SP): Fine-grained, some silt in sand matrix (some silt interbeds).
			73-85 INTERBEDDED SAND AND SILT (SP/ML): Fine-grained.
			85-97 FOSSILIFEROUS SANDY SILT (ML).
			97-110 FOSSILIFEROUS SILTY SAND (SM).
			110-120 FOSSILIFEROUS SANDY SILT (ML).
			120-130 SAND (SP): Fine to medium, some shells.

1 Blow counts per 0.5 foot interval using a Standard Penetrometer drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

NA Not available

TABLE M-23 (continued)  
LITHOLOGIC LOG FOR MONITOR WELL LG-2

<u>DRILLING/SAMPLING METHOD</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Mud Rotary Cuttings	NA	NA	130-140 INTERBEDDED SILT AND SAND (ML/SM). 140-204.5 SAND (SP): Bluish gray, fine-grained, some silt increasing with depth. 204.5-207 SILT (ML): Silt, light bluish gray, nonplastic.

TOTAL DEPTH OF BOREHOLE: 207 Feet

- 1 Blow counts per 0.5 foot interval using a Standard Penetrometer drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- NA Not available

0671

Appendix N



HARGIS + ASSOCIATES, INC.

**APPENDIX N**

**GEOPHYSICAL LOGS**

06721



HARGIS + ASSOCIATES, INC.

**APPENDIX N**

**TABLE OF CONTENTS**

<b>Log</b>	
<b>N-1</b>	<b>GEOPHYSICAL LOG OF EXPLORATORY BORING EB-2A</b>
<b>N-2</b>	<b>GEOPHYSICAL LOG OF EXPLORATORY BORING EB-3</b>
<b>N-3</b>	<b>GEOPHYSICAL LOG OF EXPLORATORY BORING EB-4</b>
<b>N-4</b>	<b>GEOPHYSICAL LOG OF EXPLORATORY BORING EB-5</b>
<b>N-5</b>	<b>GEOPHYSICAL LOG OF EXPLORATORY BORING EB-6</b>

0673

0672

— GEOPHYSICAL LOG OF  
EXPLORATORY BORING EB-2A —



106751

# GEO-HYDRO-DATA

INCORPORATED  
ELECTRIC WELL LOG

COMPANY NAME/ADDRESS/PHONE	
WELL NO. 5E-2A	
FIELD NEAR TORRANCE	
COUNTY LOS ANGELES STATE CALIFORNIA	
LOCATION	TYPE LOG UP, DR, 5' LATERAL NAT, GAMMA
DATE	TIME

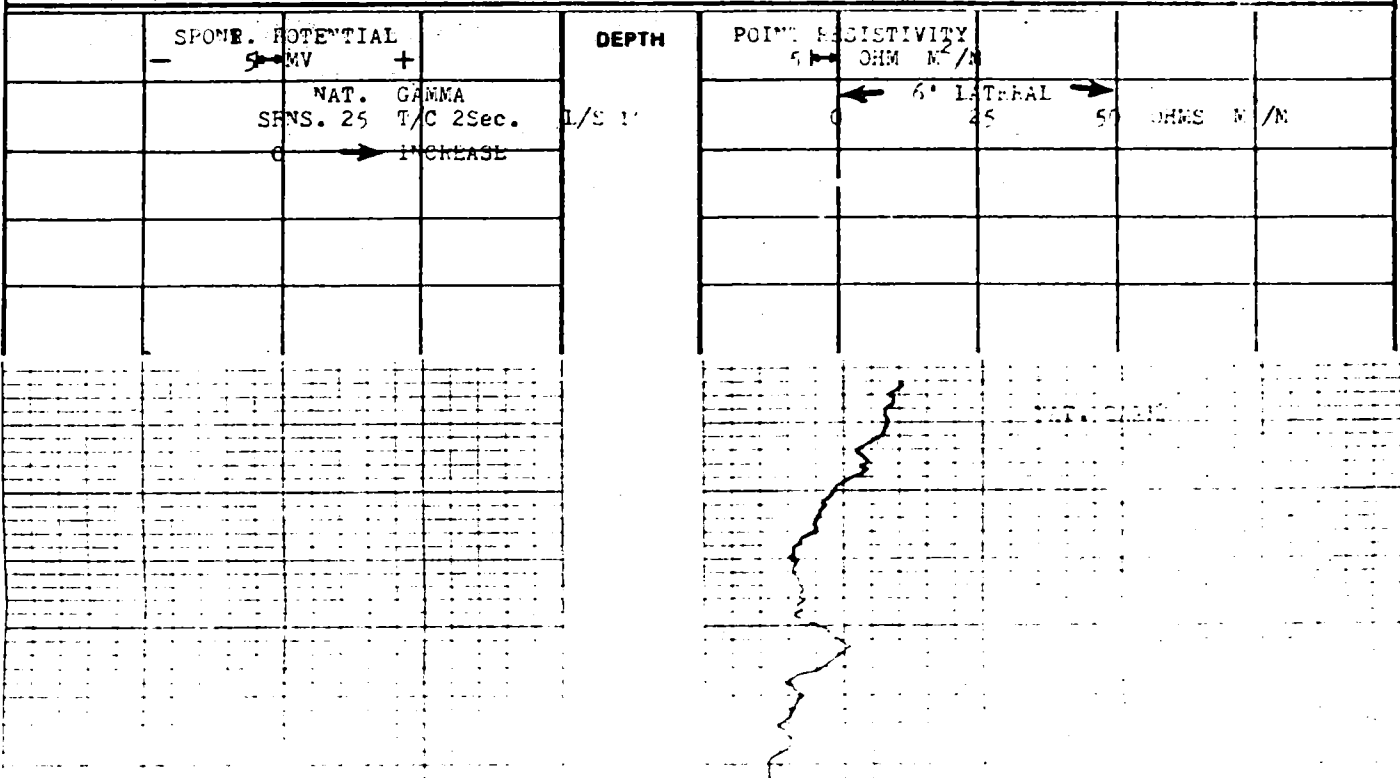
Log Measured From	1.1.1	Dev.	Dev. H. B.
Drilling Measured From	SECOND FEET		D. F.
			Q. L.

Date	30 Oct 48	
Run In	2m	1WD
Drill - Driller		
Deviation - QHD		
Block Log Meter		
Top Log Meter	1.2	1.2
Casing - Driller		
Casing - QHD		
Bit Size	1	
Bit Size		
Bit Size		
Bit Size		
Type Fluid in Hole	gel	
Source of Sample	ditch	
PHI TDS	850	
Fluid Level	Null	
Dens.		
psi		
Run @ Speed, Temp.		
Run @ Speed, Temp.		
Run @ Speed, Temp.		
Run @ Speed, Temp.		
Tool Type and No.	30	10
Unit No.	combs 21	gamma 315
Location	Shafter	
Invested In	5953	
Witnessed By	Mike Alexander	Assoc. Geologist
Other	Walt Wiedlin	Geologist

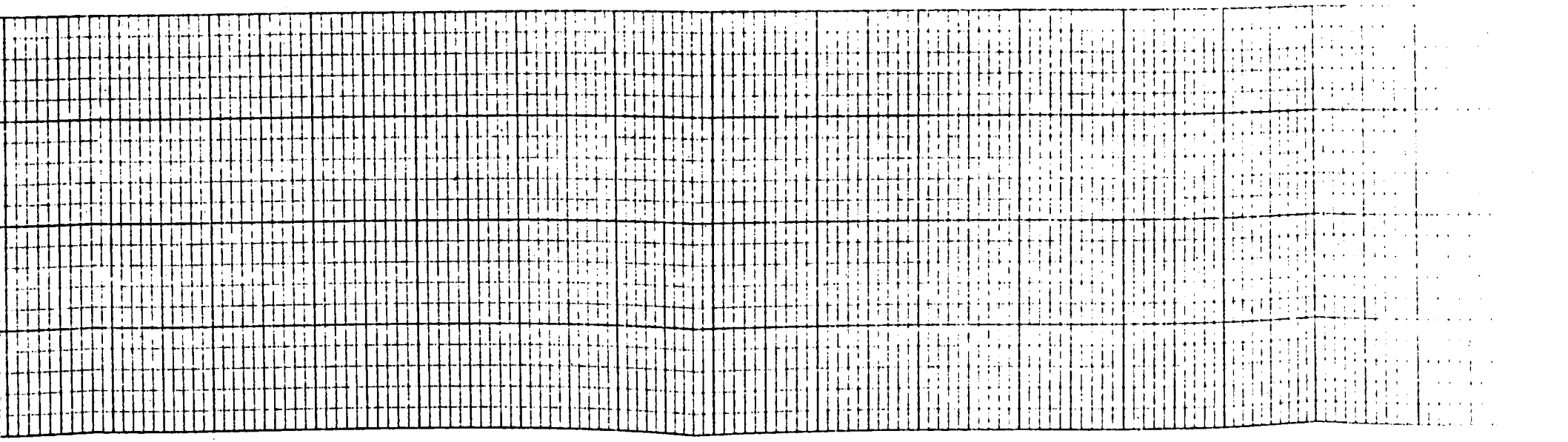
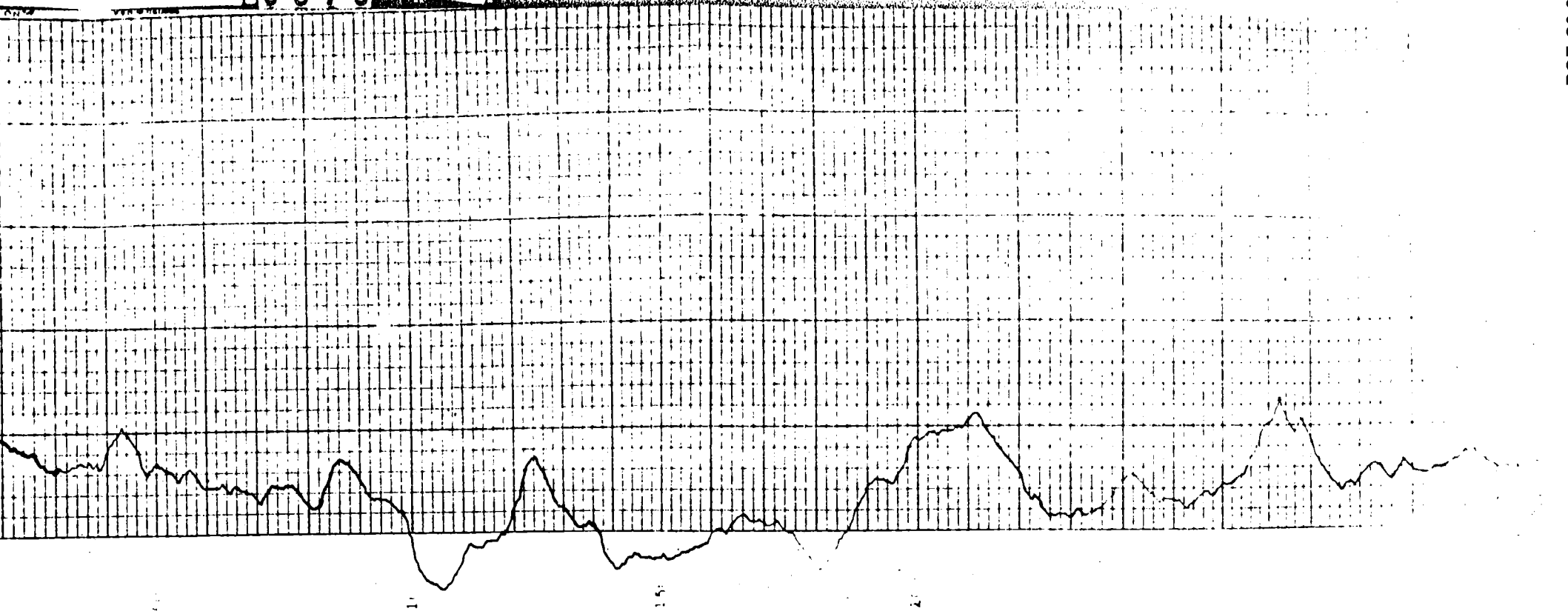
P. O. Box 418 Tehachapi, California 93561 (805) 822-4675

REMARKS:	SCALE CHANGES
DRILL METHOD: CORE/STANDARD ROTARY	Type Log Depth Scale Up Note Scale Down Note
CONSULTANT: HARGIS & ASSOC. LA, CA	
DRILLED BY: REVLIN DRILLING	
LA HARGIS & ASSOC.	

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to Clause 6 of our General Terms and Conditions as set out in our current Price Schedule.

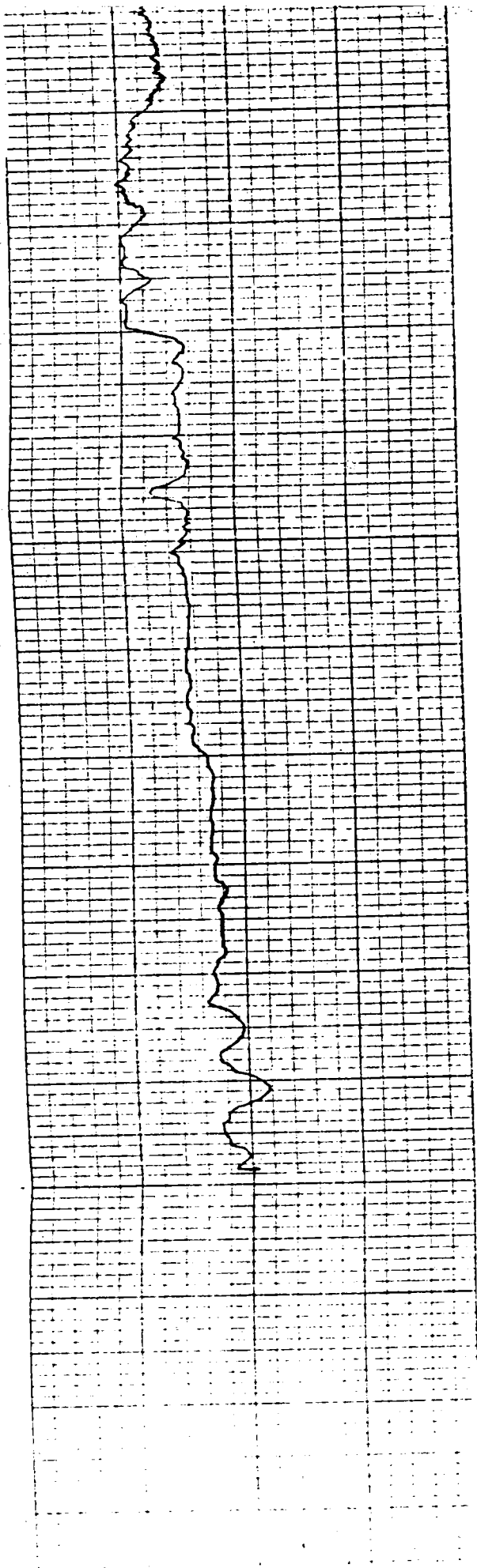


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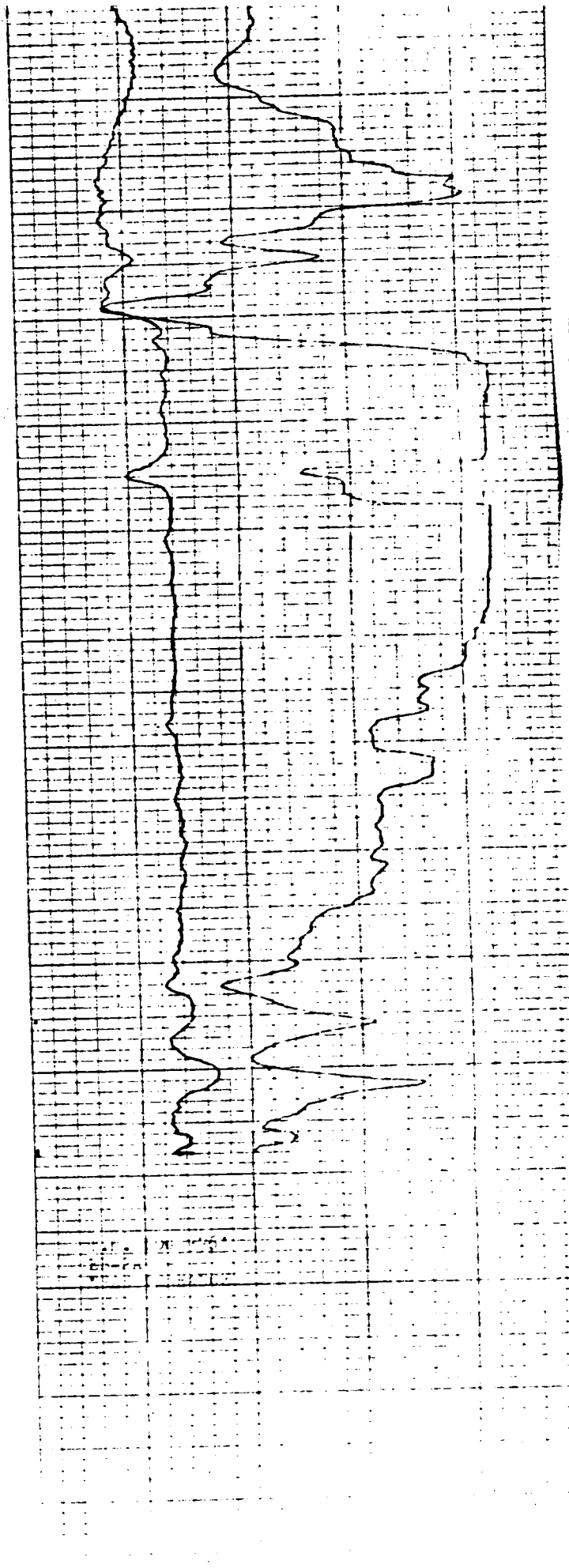


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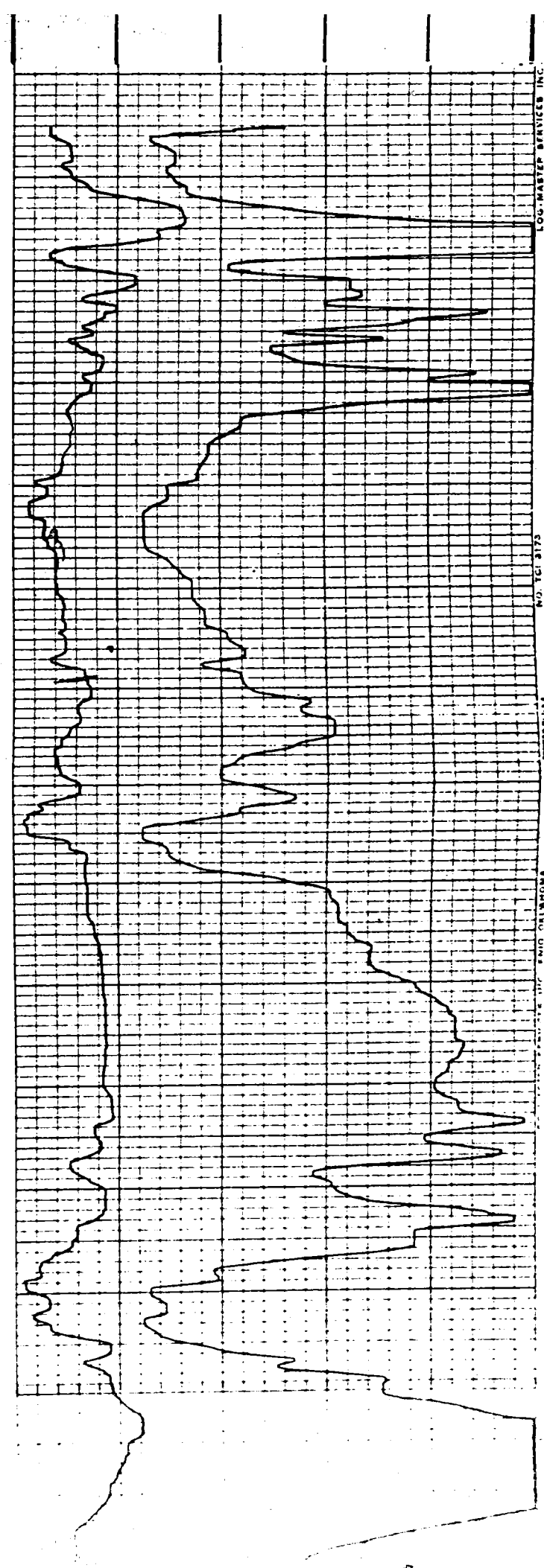
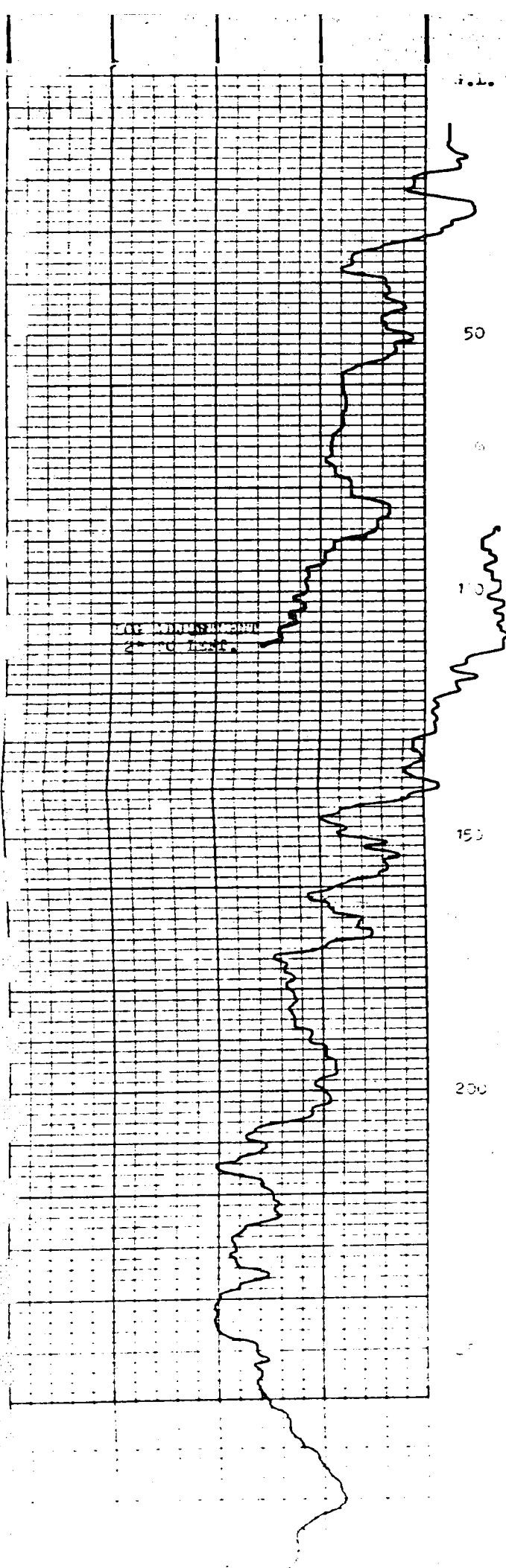


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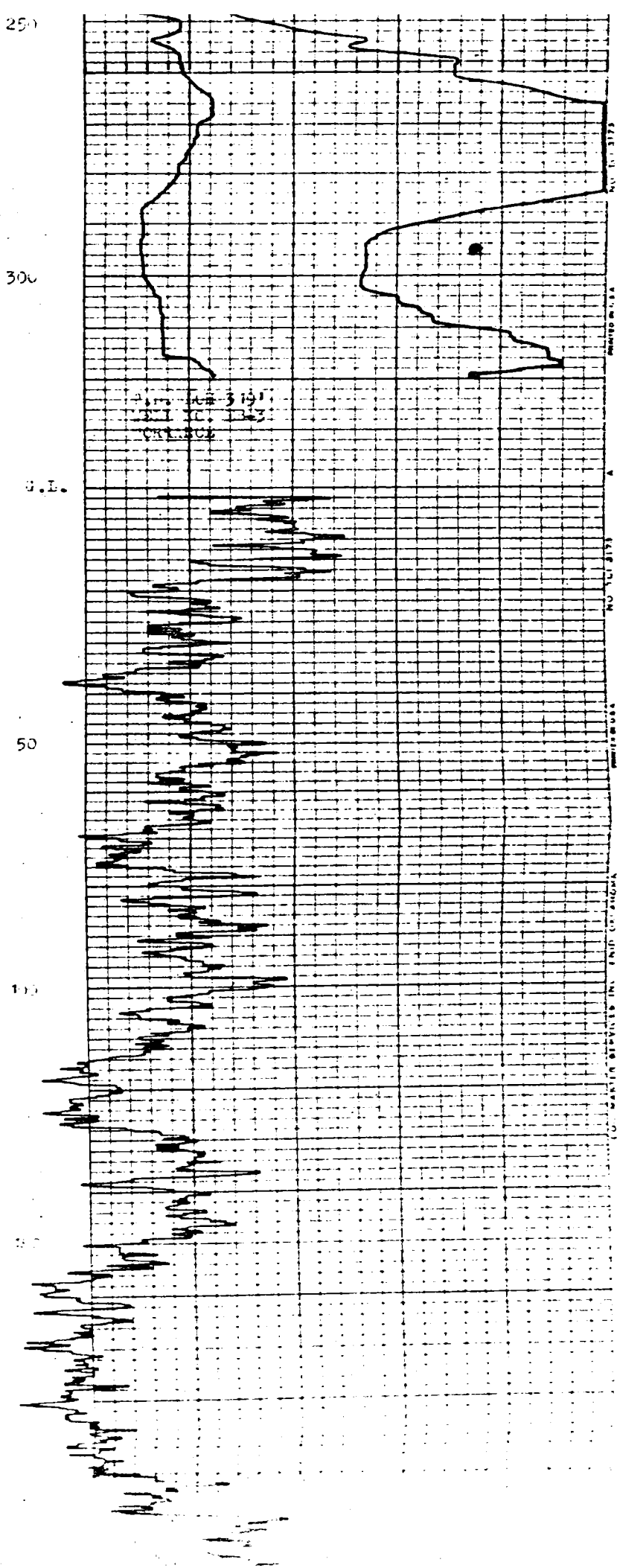
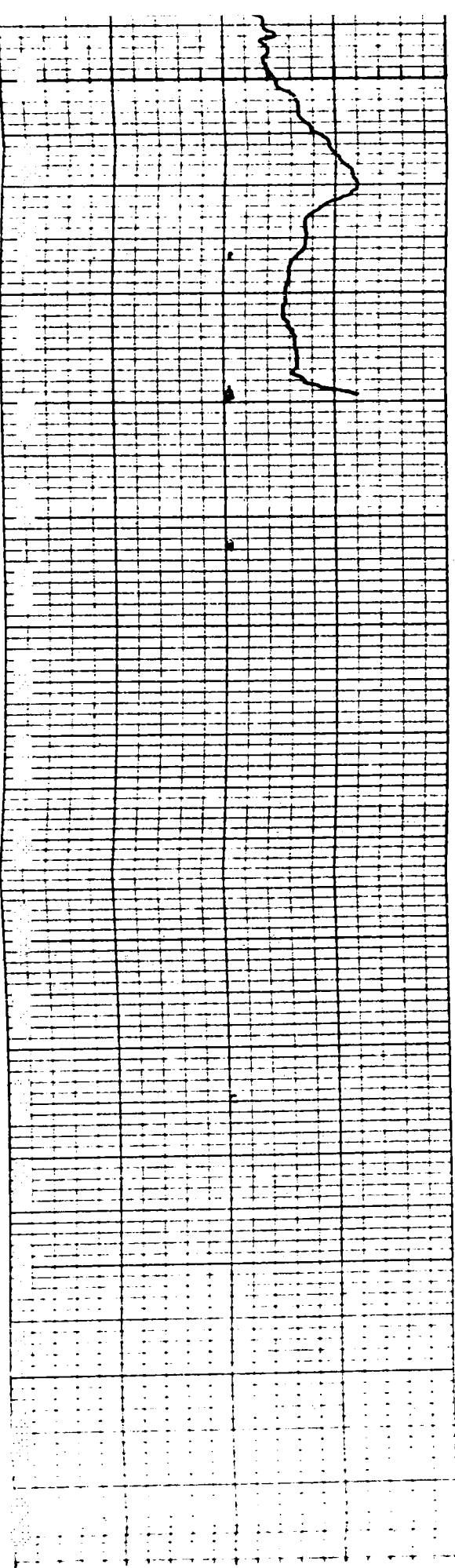
10679

GEOPHYSICAL LOG OF  
EXPLORATORY BORING EB-3



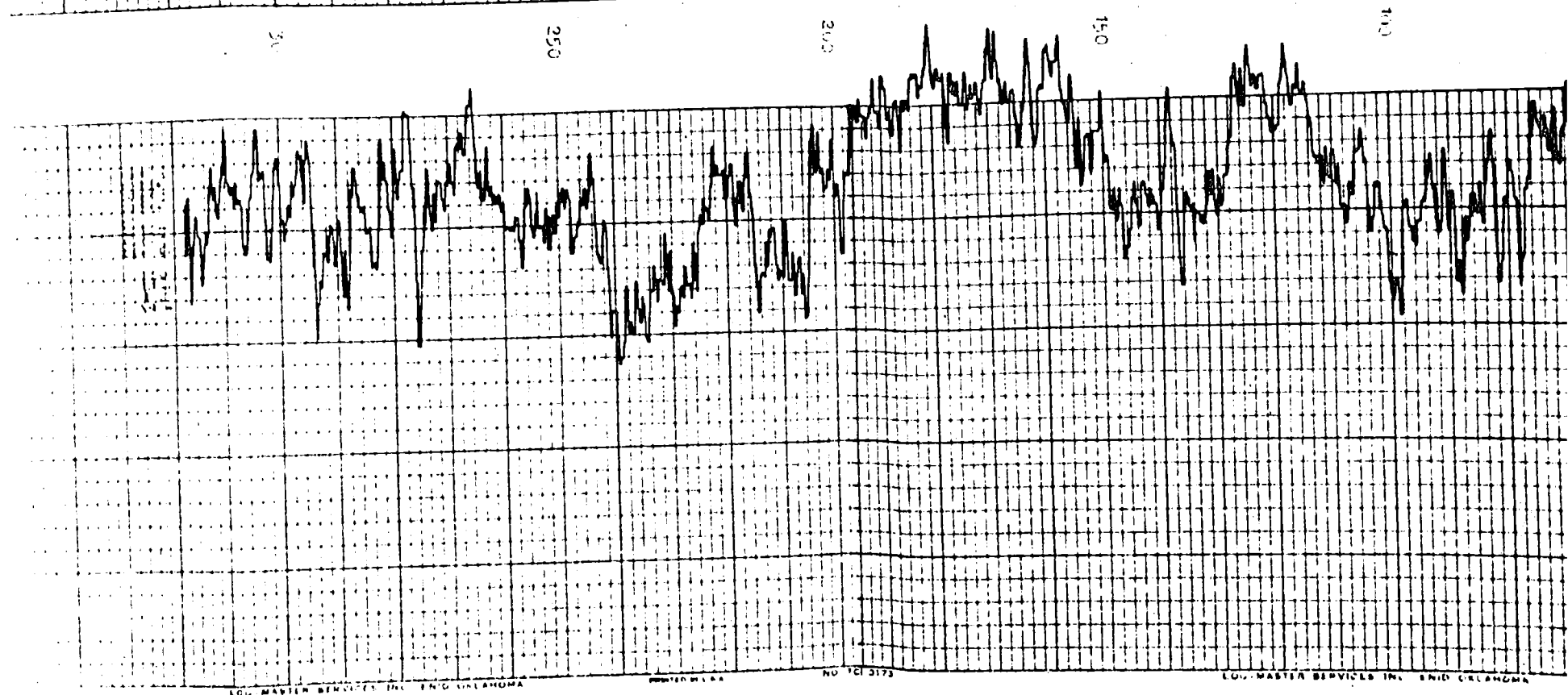
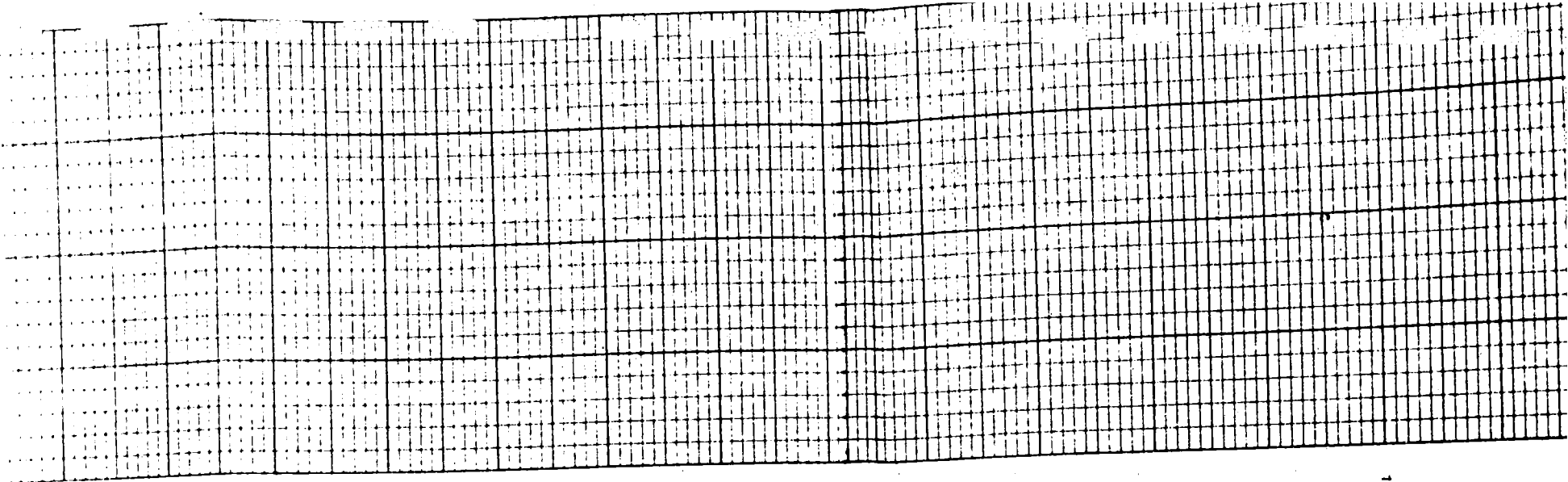


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LOG-MASTER SERVICES INC. ENID, OKLAHOMA

PRINTED IN U.S.A.

NO. 101 3173

LOG-MASTER SERVICES INC. ENID, OKLAHOMA

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07890

GEOPHYSICAL LOG OF  
EXPLORATORY BORING EB-4

0685

# GEO-HYDRO-DATA

## ELECTRIC WELL LOG

INCORPORATED

COMPANY: MONTROSE CHEMICAL

WELL: EB-4

FIELD: TORRANCE

COUNTY: LA

STATE: CA

LOCATION: \_\_\_\_\_

TYPE LOG: 3E, 1E, 6' LAT, NATURAL GAMMA

COMPANY: MONTROSE CHEMICAL

WELL: EB-4

FIELD: TORRANCE

COUNTY: LA

STATE: CA

LOCATION: \_\_\_\_\_

TYPE LOG: 3E, 1E, 6' LAT, NATURAL GAMMA

GROUND LEVEL

Log Interval From 0.1. 0 ft. Above From Datum

Drilling Interval From 0.1. 0 ft.

DATE: NOV. 14, 1988

Depth - 320

Depth - 320

Depth - 320

Depth - 320

Depth - 320

Depth - 320

Depth - 320

Depth - 320

Depth - 320

Depth - 320

Depth - 320

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Depth - 320

Depth - 320

P. O. Box 418

Technapi, California 93368

(800) 822-8878

REMARKS: CONSULTANTS: HARGIS & ASSOCIATES  
WELL METHOD: STANDARD ROTARY

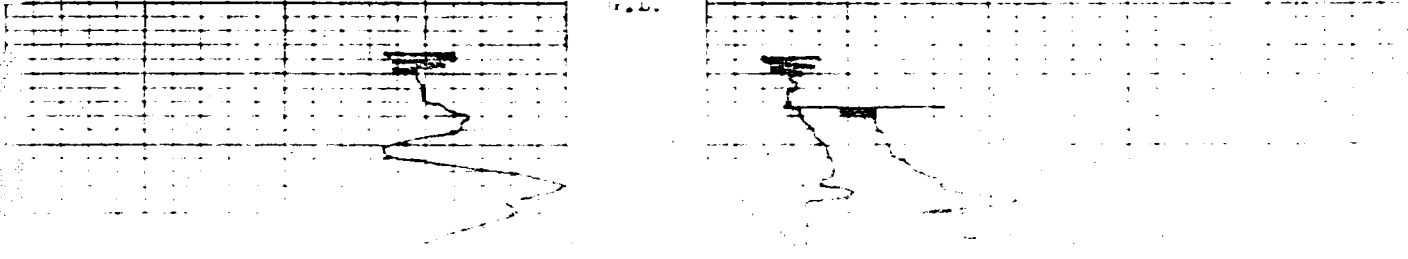
SCALE CHANGES			
Type Log	Depth	Scale Up Hole	Scale Down Hole

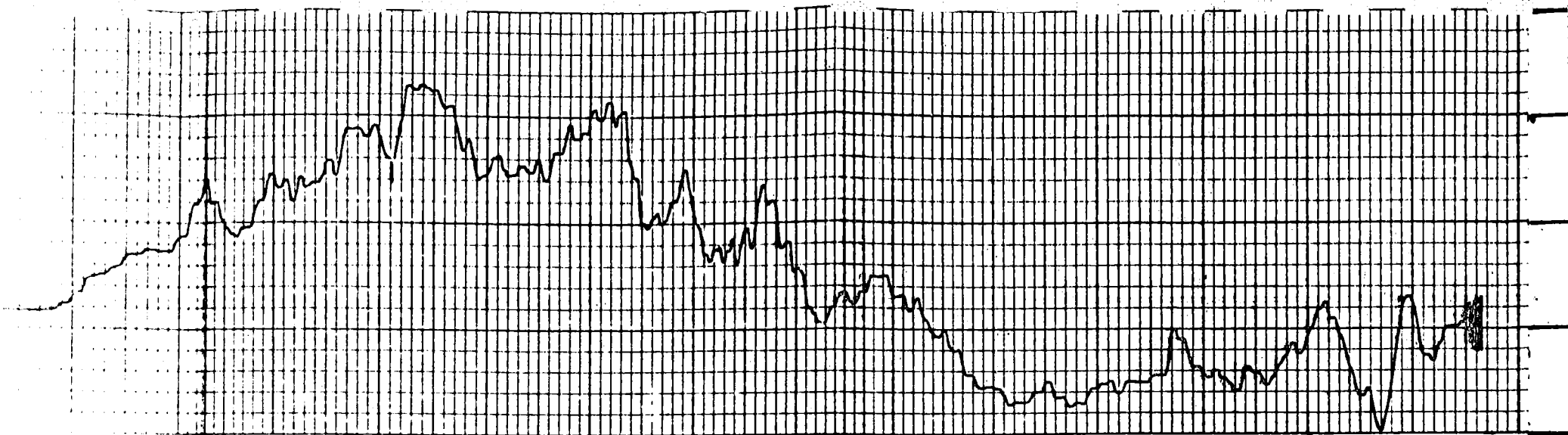
DRILLED BY: BEVLYK DRILLING  
LA HABRA, CA

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WATER QUALITY	YIELD	FORMATION
	SHADING INDICATES AREAS OF POSSIBLE YIELD. THE INDICATED YIELD IS USUALLY RELATIVE, BECOME GREATER AS SHADING AREA INCREASES.	DESCRIPTION IS GENERAL, NOT GEOLOGIC. SAND INCLUDES GRAVELS. BASED ON ELECTRICAL PRO- PERTIES INDICATED BY THE LOG. ADDITIONAL DATA IS ALSO CONSIDERED IF AVAILABLE.

SPON. POTENTIAL	DEPTH	POINT RESISTIVITY
- 5 MV +		5 CHRS $\Omega^2/\text{m}$
NATURAL GAMMA LOG		6' LATERAL
SENSITIVITY		25 CHRS $\Omega^2/\text{m}$
TIME CONSTANT	25	50 CHRS $\Omega^2/\text{m}$
LINE SPEED	10"/min.	
INCREASING RADIATION		





250

200

150

100

50

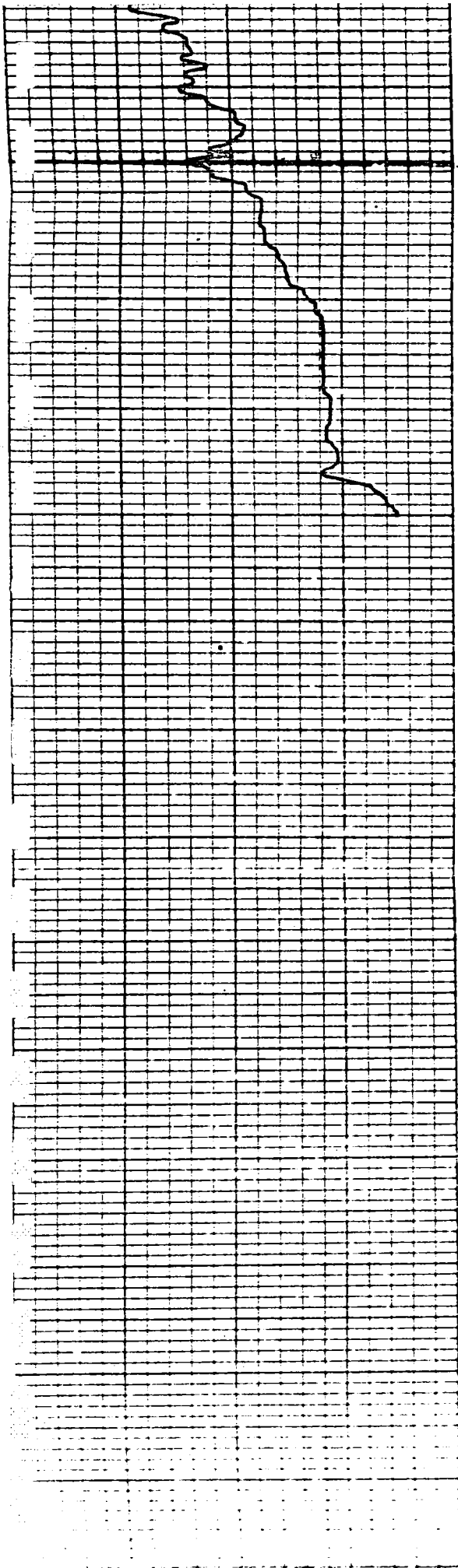
G.T.



LDG-MARTEN SERVICES, INC. ENID, OKLAHOMA

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BOE-C6-0183367



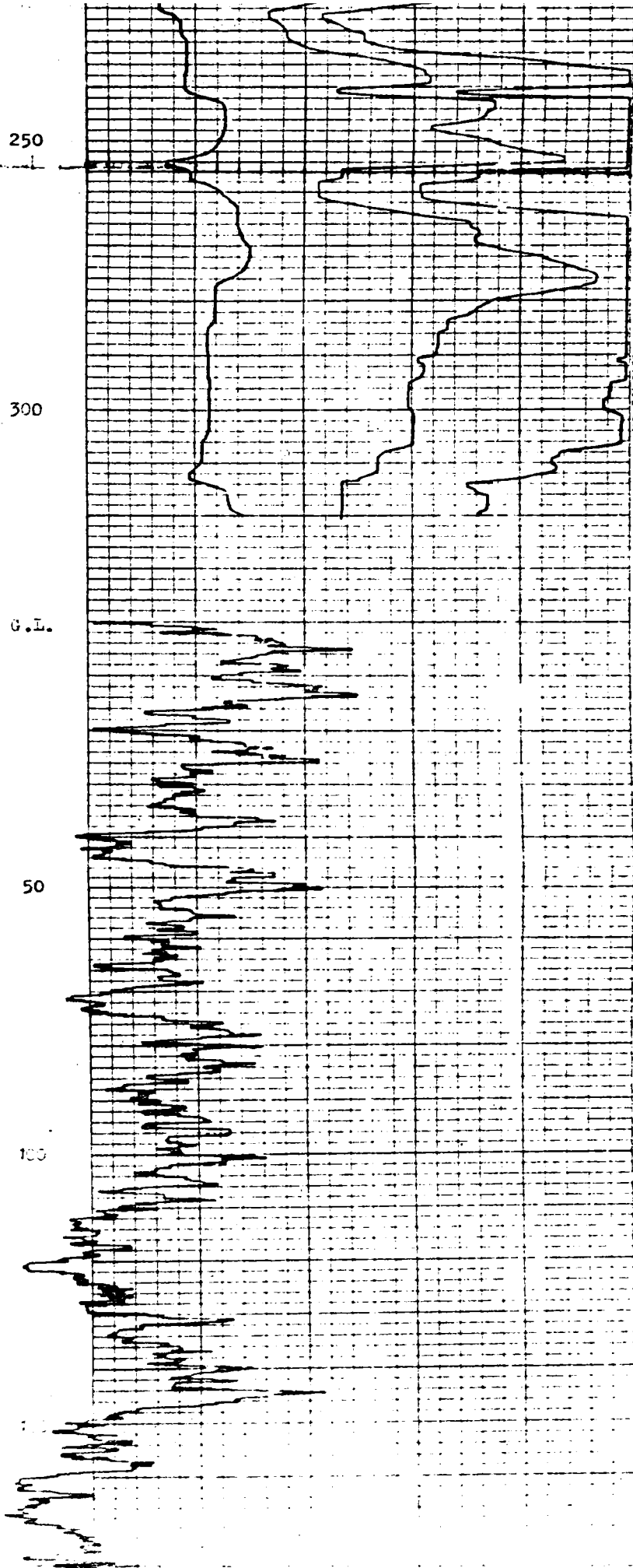
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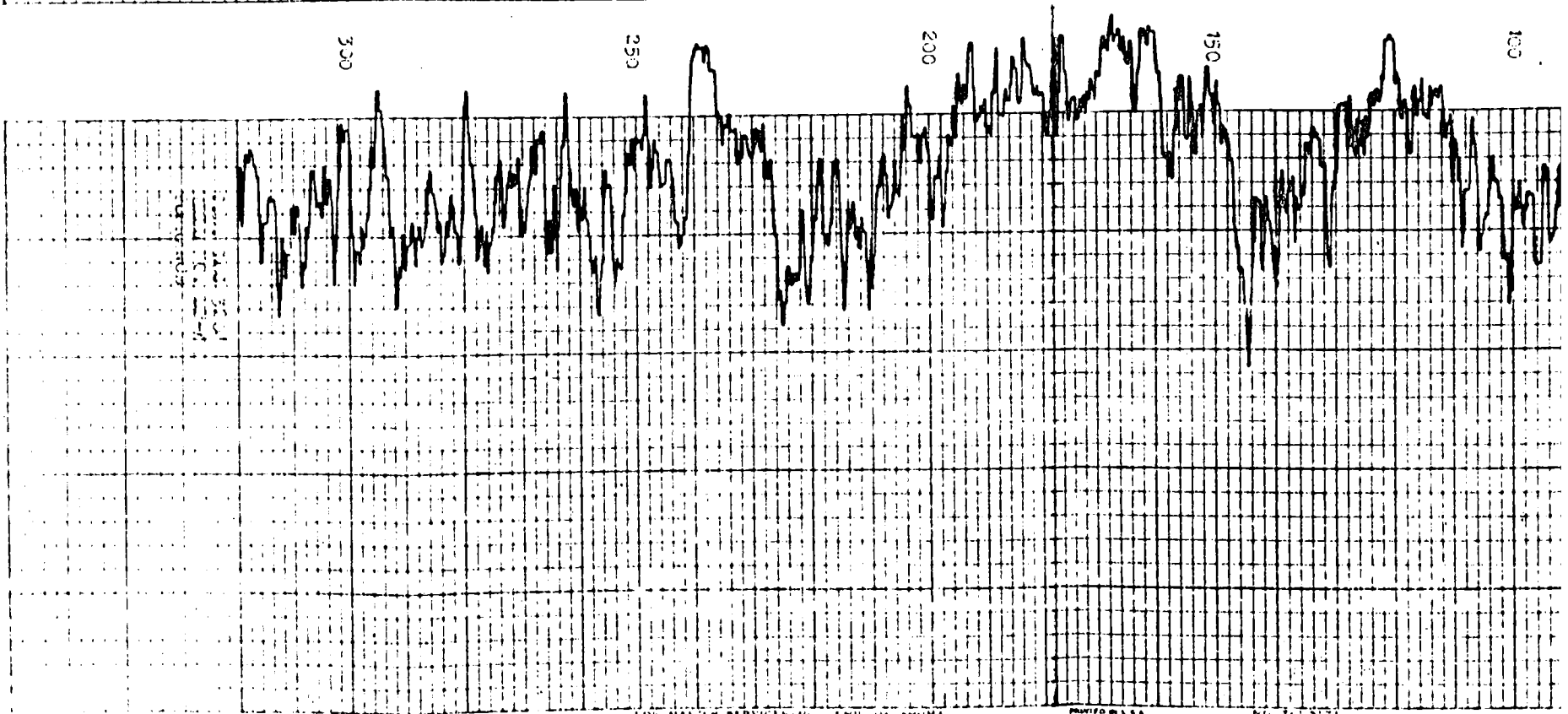
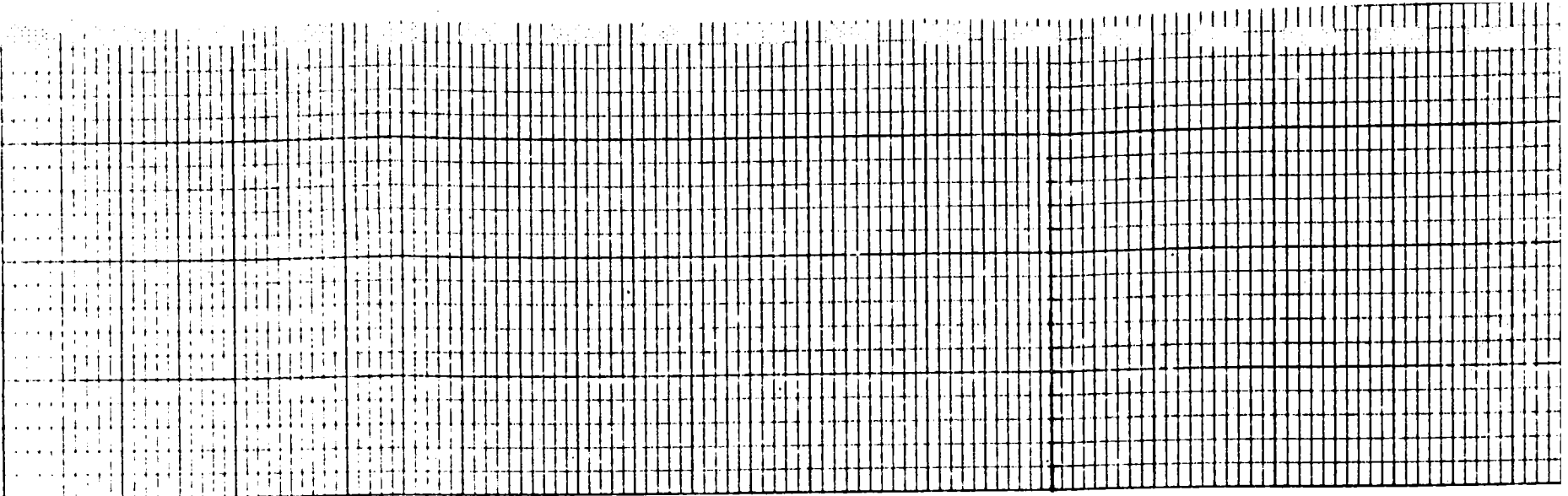
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106871



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16890

GEOPHYSICAL LOG OF  
EXPLORATORY BORING EB-5

0690

# GEO-HYDRO-DATA

## ELECTRIC WELL LOG

COMPANY: MONTROSE CHEMICAL	
WELL: 22-5	
FIELD: TORRANCE	
COUNTY: LA STATE: CA	
LOCATION: 32° 23' 51" N 112° 01' 00" W	
TYPE LOG: ELECTRICAL LOG	

Permanent Datum: 10' TO V.L.	DATE: NOV. 9, 1963
Log Interval From: 1.1.	TO: 0
Drilling Interval From: 1.1.	TO: 0

Depth - Feet	Log Interval	Drilling Interval	Remarks
1	1.1	0	
2	2.2	0	
3	3.3	0	
4	4.4	0	
5	5.5	0	
6	6.6	0	
7	7.7	0	
8	8.8	0	
9	9.9	0	
10	10.0	0	
11	11.1	0	
12	12.2	0	
13	13.3	0	
14	14.4	0	
15	15.5	0	
16	16.6	0	
17	17.7	0	
18	18.8	0	
19	19.9	0	
20	20.0	0	
21	21.1	0	
22	22.2	0	
23	23.3	0	
24	24.4	0	
25	25.5	0	
26	26.6	0	
27	27.7	0	
28	28.8	0	
29	29.9	0	
30	30.0	0	
31	31.1	0	
32	32.2	0	
33	33.3	0	
34	34.4	0	
35	35.5	0	
36	36.6	0	
37	37.7	0	
38	38.8	0	
39	39.9	0	
40	40.0	0	
41	41.1	0	
42	42.2	0	
43	43.3	0	
44	44.4	0	
45	45.5	0	
46	46.6	0	
47	47.7	0	
48	48.8	0	
49	49.9	0	
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59	59.9	0	
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92	92.2	0	
93	93.3	0	
94	94.4	0	
95	95.5	0	
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100	100.0	0	

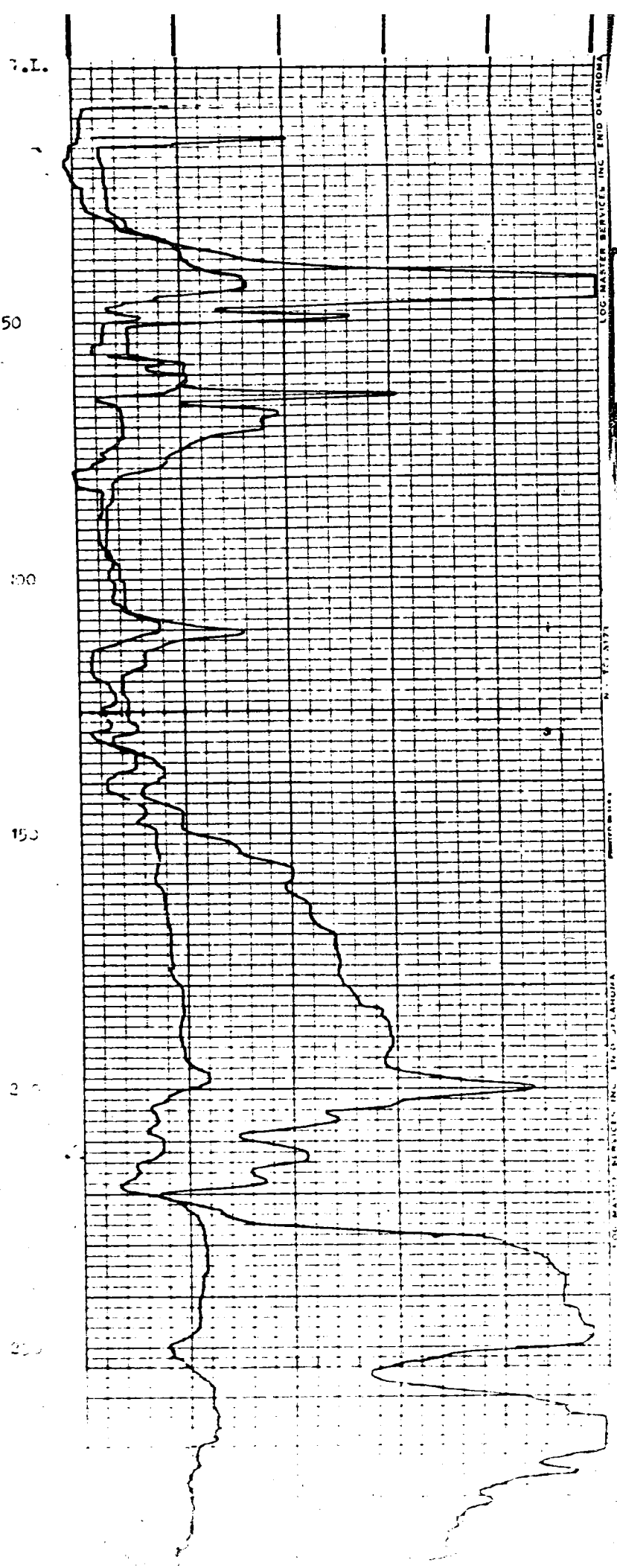
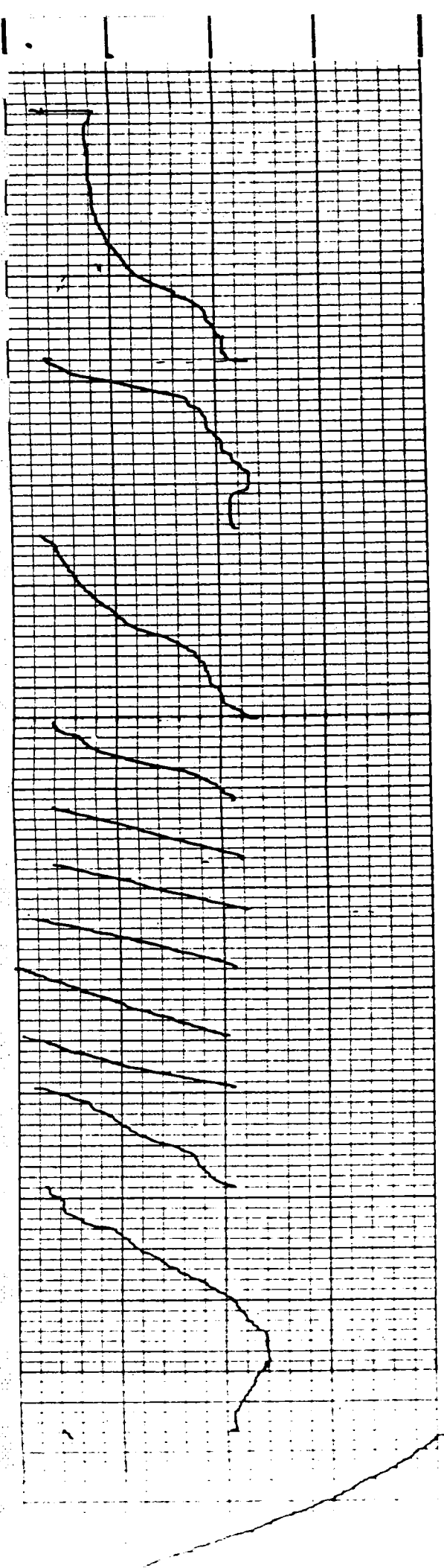
REMARKS: CONDUCTIVITY LOG - 10' TO 100' DEPTH	SCALE CHANGES
DRILL METHOD: TRIPLEG DRILL BY HIGH VOLTAGE LINES: SALT PLS. SHIN	Type Log
DRILLED BY: BOYLEE DRILLING	Depth
	Scale Up Hole
	Scale Down Hole

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WATER QUALITY	YIELD	FORMATION
ppm TDS	SHADING INDICATES AREAS OF PROBABLE YIELD. THE INDICATED YIELD IS USUALLY RELATIVE, BEING GREATER AS SHADING AREA INCREASES.	DESCRIPTION IS GENERAL, NOT GEOLOGIC. SAND INCLUDES GRAVELS. BASED ON ELECTRICAL PRO- PERTIES INDICATED BY THE LOG. ADDITIONAL DATA IS ALSO CONSIDERED IF AVAILABLE.

SPCH. POTENTIAL	DEPTH	POINT RESISTIVITY
10 - 100	5	100
NATURAL GRAVEL LOG	6	100
SENSITIVITY	7	100
LINE SPREAD	8	100
INCREASING RESISTANCE	9	100



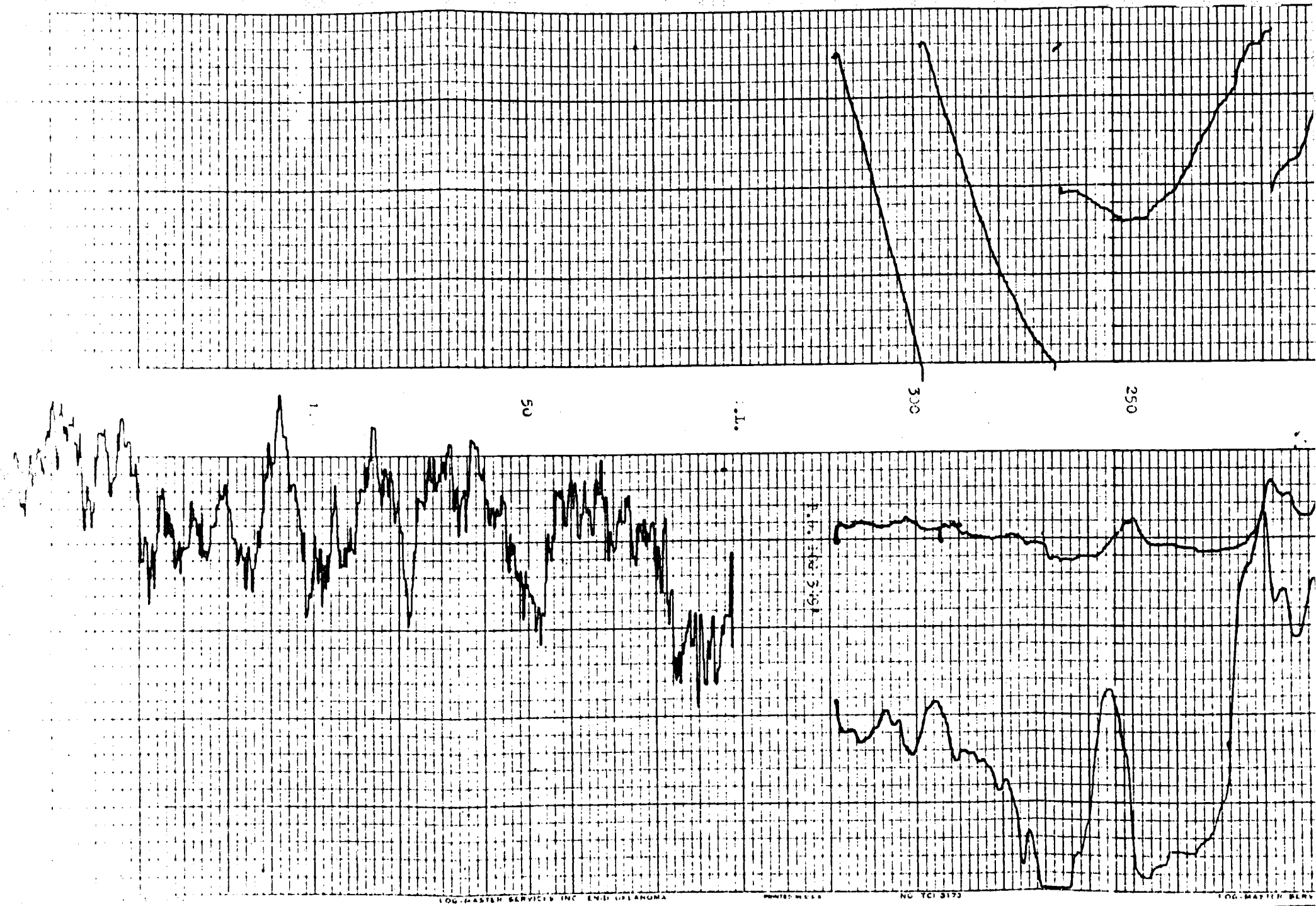


LOG-MARTIN SERVICES INC. END OLANOMA

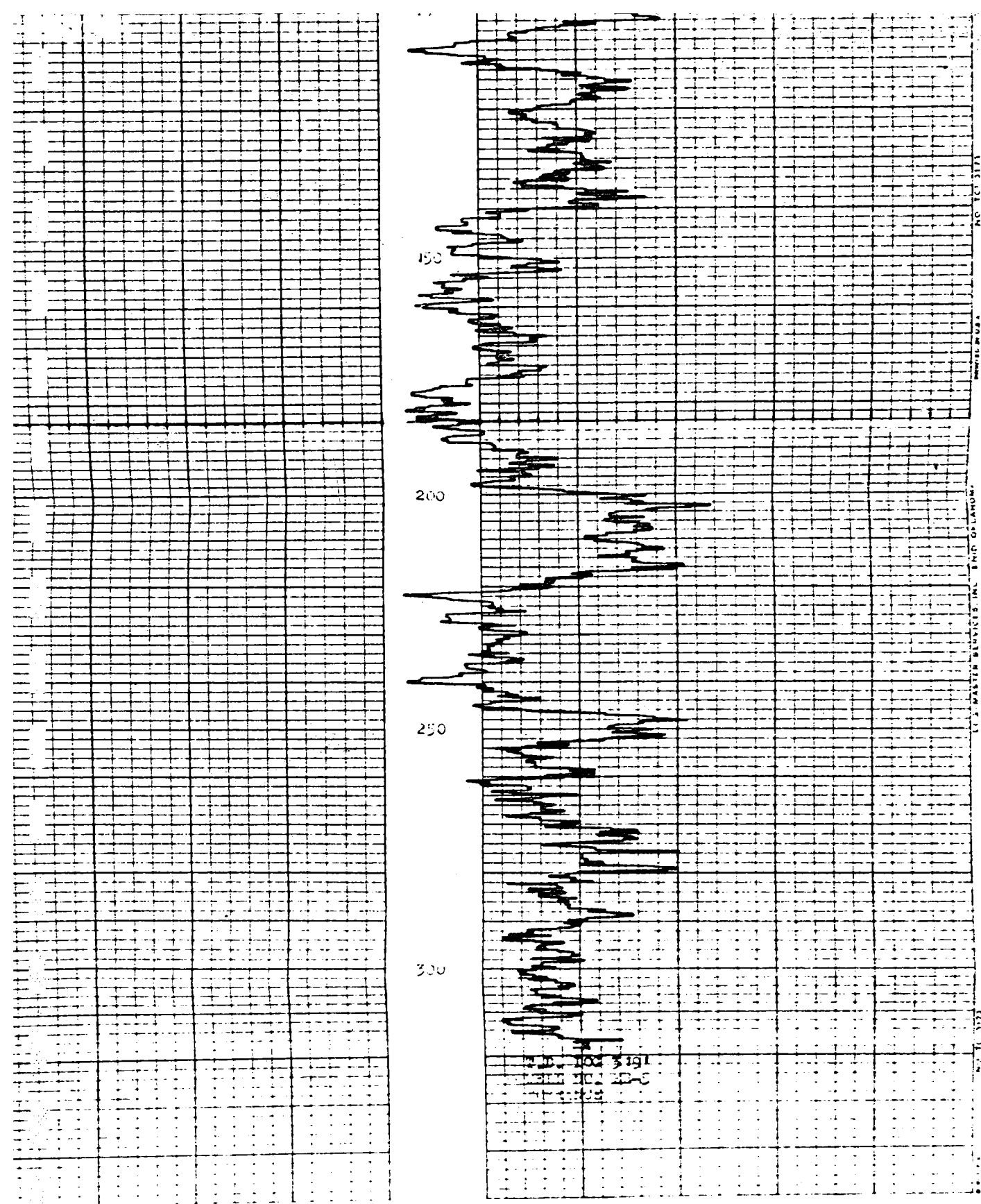
1690

1690

LOG-MARTIN SERVICES INC. END OLANOMA



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7690

GEOPHYSICAL LOG OF  
EXPLORATORY BORING EB-6

0695

•NCCORP

ELECTRIC WITH LOG

COUNTY _____ STATE _____ COUNTY _____ STATE _____	
LOCATION _____ COUNTY _____ STATE _____ TYPE LOG _____ NO. _____ DATE _____ NAME _____	WELL _____ PLOT _____ COUNTY _____ STATE _____

[illegible]

REMARKS:		SCALE CHART 1.8			
DRILL METHOD:		Type Log	Depth	Scale Up Hole	Scale Down Hole
STANDARD ROTARY					
CONSULTANT: HARCIS & ASSOC.	12 1/2 in. C.A.				
DRILLED BY: FREYER DRILLING					
12 HARRIS, CA.					

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SPONT.	POTENTIAL
5	MV
WAT. GAMMA	
25	1
0.	INCREASE

**DEPTH**

POINT RESPONSIVE

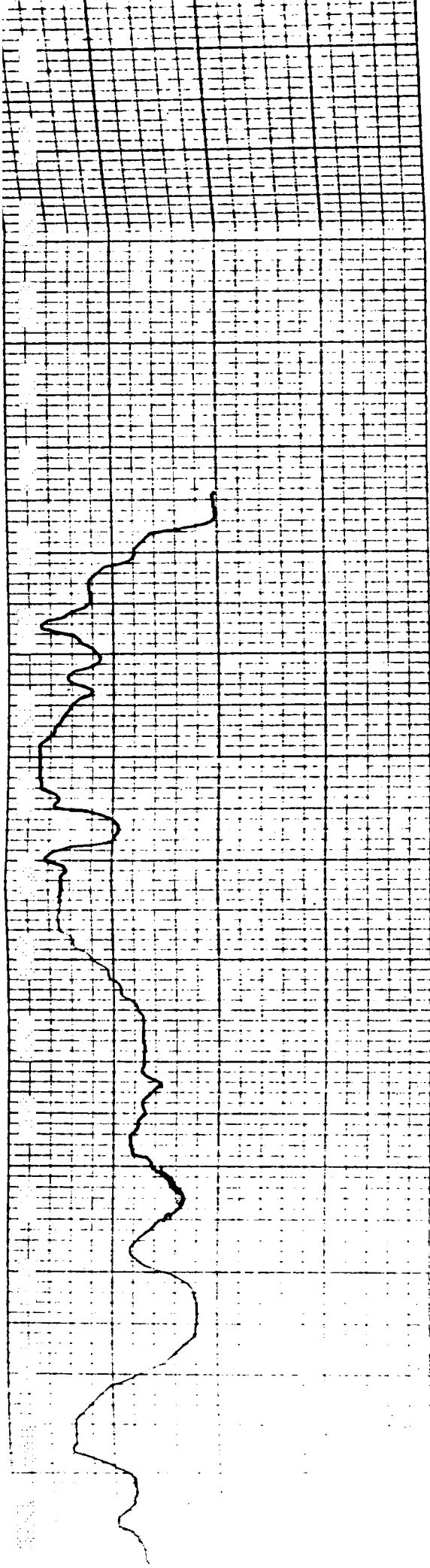
OHG M2/A

2. INTERVAL

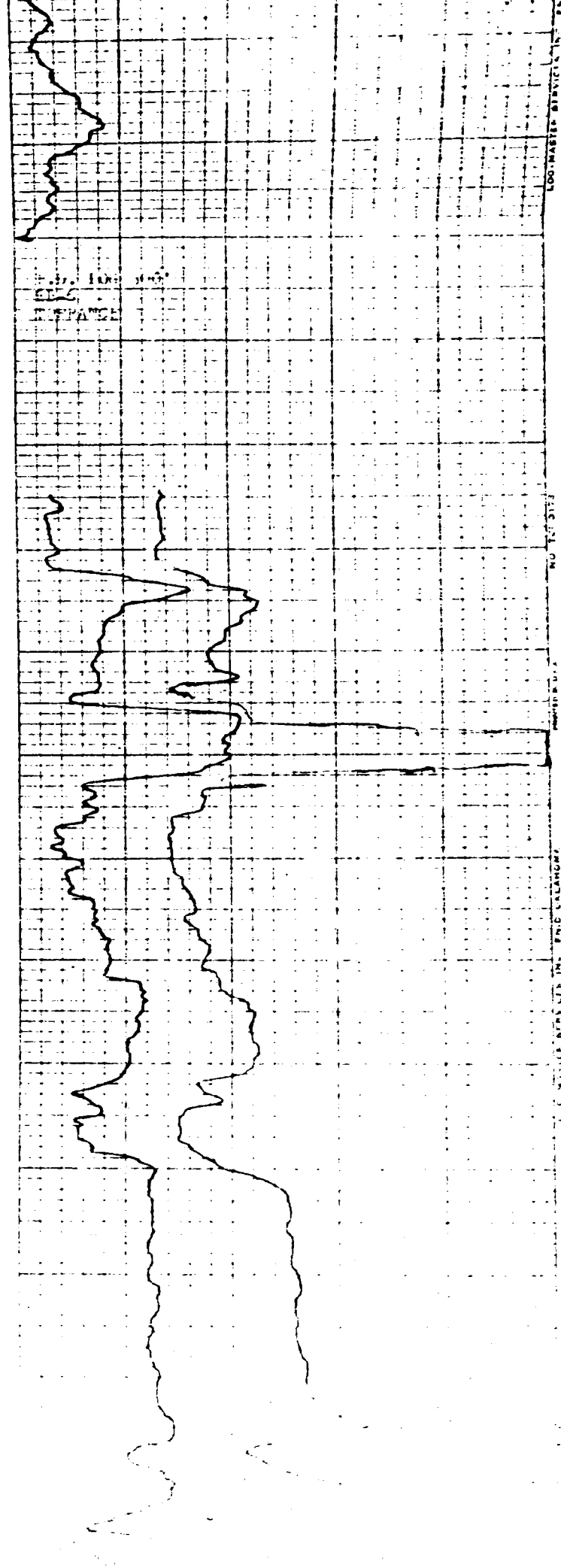
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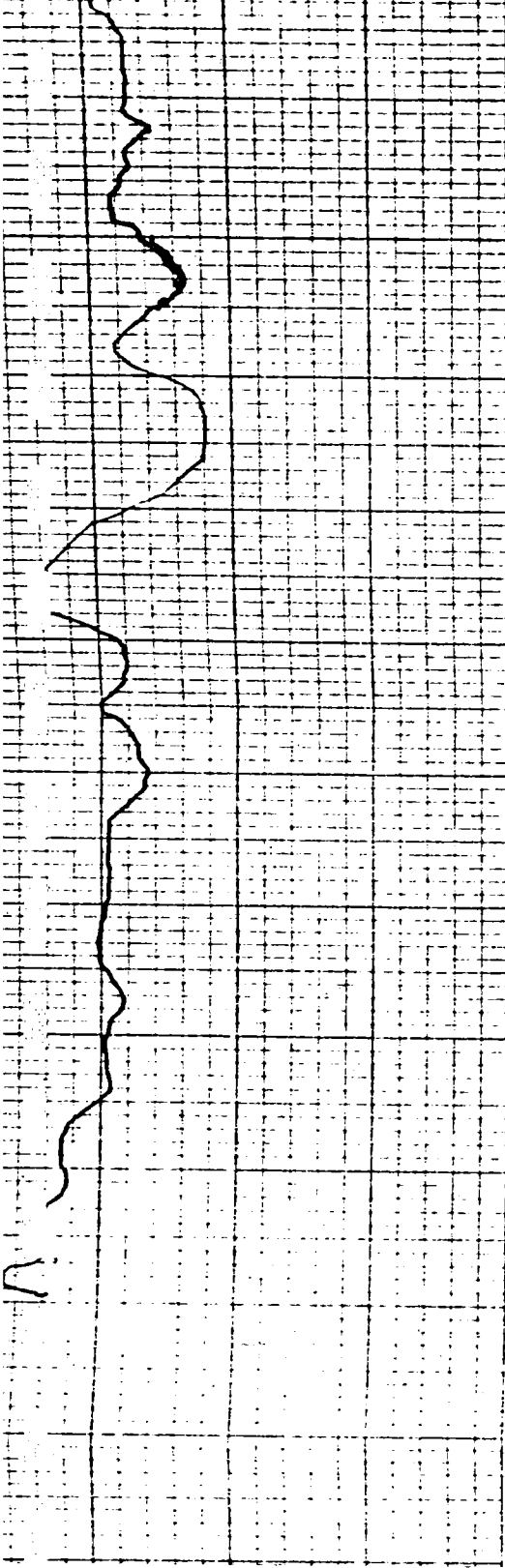
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50  
100  
75



0.0  
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LOG-MASTER SERVICE, INC.  
NO. 100 313  
PAPER 801-A  
WILLIS BROS. LTD. INC. ENG. CALIFORNIA

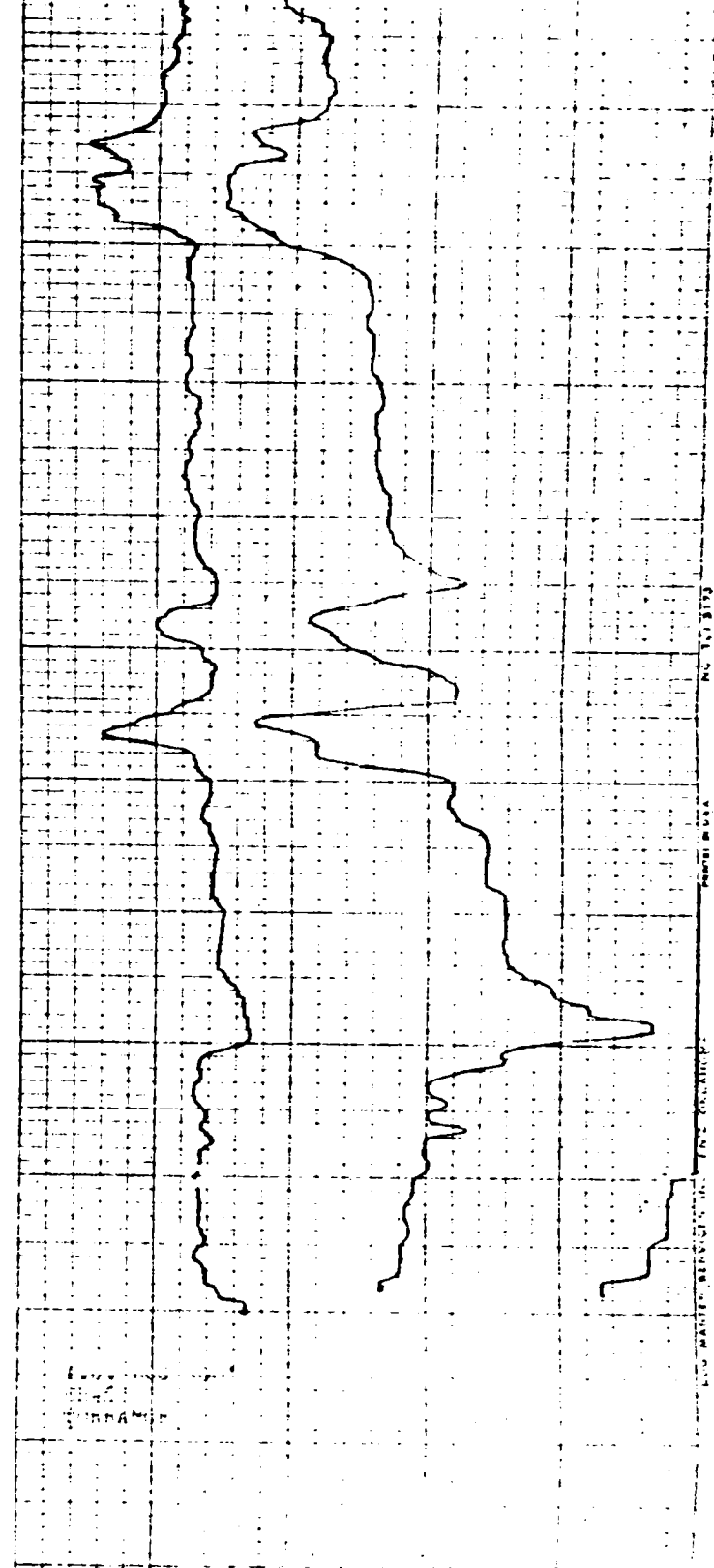
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Extensive work  
done  
in 1940

NO. 101 3173  
RECORD IN 1940  
LUD. MANTON, SERVICE UNIT, FINE COUNTRY

10690



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Appendix O



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APPENDIX O

WELL CONSTRUCTION DATA

67601



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## APPENDIX O

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0701

TABLE O-1  
WELL CONSTRUCTION DATA  
UPPER BELLFLOWER AQUITARD MONITOR WELLS

WELL ID	DEPTH DRILLED <sup>1</sup> (feet bls)	DATE COMPLETED	4-INCH <sup>1</sup> DIAMETER PVC BLANK CASING INTERVAL (feet bls)	4-INCH <sup>1</sup> DIAMETER 316L WIRE WRAP SCREEN INTERVAL (feet bls)	SCREEN SLOT SIZE (inches)	FILTER PACK <sup>1</sup> INTERVAL (feet bls)	FILTER PACK SIZE <sup>2</sup>	BENTONITE <sup>1</sup> SEAL INTERVAL (feet bls)	GROUT FILTER <sup>1</sup> INTERVAL (feet bls)	CEMENTED <sup>1</sup> INTERVAL (feet bls)
MW-6	85	11/17/89	0-65	65-80	0.020	60-84	1C	57-60	55-57	0-55
MW-7	85	11/18/89	0-65	65-80	0.020	60-85	1C	57-60	55-57	0-55
MW-10	83	11/22/89	0-62	62-77	0.020	56-83	1C	53-56	52-53	0-52
MW-11	84	11/23/89	0-62	62-77	0.020	58-83	1C	55-58	53-55	0-53
MW-12	85	11/19/89	0-61	61-76	0.020	54-85	1C	51-54	49-51	0-49
MW-13	81	11/15/89	0-62	62-77	0.020	59-78	1C	57-59	56-57	0-56
MW-14	80	11/21/89	0-58	58-73	0.020	54-80	1C	48-54	45-48	0-45
MW-15	83	11/21/89	0-62	62-77	0.020	57-83	1C	54-57	52-54	0-52

<sup>1</sup> Dimensions reported to the nearest foot.

<sup>2</sup> Filter pack consists of Monterey sand, filter pack sizes are Lone Star Lapis Lustre size designations.

TABLE O-2  
WELL CONSTRUCTION DATA  
BELLFLOWER SAND AND GAGE AQUIFER MONITOR WELLS

WELL ID	DATE COMPLETED	TOTAL DEPTH DRILLED (feet, bls)	13 3/4-INCH <sup>1</sup> DIAMETER BORING (feet, bls)	8 5/8-INCH <sup>1</sup> O.D. STEEL CONDUCTOR CEMENTED CASING (feet, bls)	17-INCH <sup>1</sup> DIAMETER BORING (feet, bls)	4-INCH <sup>1</sup> DIAMETER PVC BLANK CASING INTERVAL (feet, bls)	4-INCH <sup>1</sup> DIAMETER 316L BLANK CASING INTERVAL (feet, bls)	4-INCH <sup>1</sup> DIAMETER 316L WIRE WRAP SCREEN INTERVAL (feet, bls)	SCREEN SLOT SIZE (inches)	FILTER PACK <sup>1</sup> INTERVAL (feet, bls)	FILTER PACK SIZE <sup>2</sup>	GROUT <sup>1</sup> FILTER PACK INTERVAL (feet, bls)	INTER CASING <sup>1</sup> GROUT SEAL (feet, bls)
BF-5	01/14/89	135	0-112	0-112	112-132	0-112	112-122	122-132	0.045	119-135	MA	112-119 <sup>4</sup>	0-112
BF-6	12/03/88	132	0-101	0-101	101-129	0-105	105-115	115-125	0.020	111-132	#1C	110-111	0-110
BF-7	12/09/88	119	0-101	0-101	101-118	0-96	96-106	106-116	0.020	102-119	#1C	96-102	0-96
BF-8	01/06/89	126	0-100	0-100	100-125	0-104	104-115	115-125	0.045	112-126	MA	110-112	0-110
BF-9	01/03/89	129	0-104	0-104	104-128	0-47 <sup>3</sup>	47-107 <sup>3</sup>	107-118 <sup>3</sup>	0.030	105-117	#3	95-105	0-95
								118-120 <sup>3</sup>	0.045	117-129	MA		
G-4	01/17/89	195	0-148	0-148	148-194	0-144	144-154	154-194	0.020	151-195	#1C	148-151 <sup>4</sup>	0-148
G-5	12/07/88	194	0-145	0-145	145-192	0-141	141-151	151-190	0.020	128-194	#1C	126-128	0-126
G-6	12/12/88	192	0-144	0-144	144-191	0-139	139-149	149-190	0.020	149-192	#1C	148-149	0-148
G-7	01/11/89	181	0-136	0-136	136-180	0-130	130-140	140-180	0.020	136-181	#1C	134-136	0-134
LG-2	12/21/88	207	0-175	0-175	175-206	0-105	105-185	185-205	0.020	179-207	#1C	177-179	0-177

<sup>1</sup> Dimensions reported to the nearest foot.

<sup>2</sup> Filter pack consists of Monterey sand; filter pack sizes are Lone Star Lapis Lustris size designations.

<sup>3</sup> Six-inch diameter well casing and screen installed in BF-9.

<sup>4</sup> No grout filter emplaced, granular bentonite emplaced on top of filter pack.

TABLE 0-3

## WELL DEVELOPMENT PUMPING SUMMARY

<u>WELL ID</u>	<u>DEPTH TO STATIC WATER LEVEL (feet, b/s)</u>	<u>DURATION OF PUMPING (minutes)</u>	<u>AVERAGE DISCHARGE RATE (gpm)<sup>1</sup></u>	<u>ELECTRICAL CONDUCTIVITY<sup>2</sup></u>	<u>pH<sup>3</sup></u>
MW-6	69.2	122	0.8	6620	6
MW-7	70.5	25	8.9	967	7
MW-10	67.1	26	0.4	>2000	7
MW-11	67.2	75	0.06	>2000	6
MW-12	64.8	23	3.3	2130	7
MW-13	66.4	79	13.4	1400	7
MW-14	65.1	23	0.8	>2000	6
MW-15	64.8	41	1.4	3280	7
BF-5	64.4	60	9.2	778	7
BF-6	64.6	29	8.6	1300	7
BF-7	66.0	23	9.4	1314	7
BF-8	64.5	25	9.4	959	7
BF-9	71.9	18	9.4	990	7
G-4	64.4	56	9.4	680	7
G-5	67.6	14	8.1	890	6 1/2
G-6	66.2	35	9.4	740	7
G-7	64.5	24	9.4	816	7
LG-2	68.1	27	9.4	634	7

<sup>1</sup> gpm = gallons per minute<sup>2</sup> measured in micromhos per centimeter<sup>3</sup> pH = measured with paper test strips calibrated to 0.5 pH units

**TABLE 0-4**  
**PUMP SETTING SUMMARY**

<u>WELL ID</u>	<u>DEPTH TO GAS DRIVE PURGE PUMP INTAKE<sup>1</sup></u>	<u>DEPTH TO ELECTRIC SUBMERSIBLE PURGE PUMP INTAKE</u>	<u>DEPTH TO BLADDER PUMP INTAKE BELOW TOP OF CASING</u>
MW-6	72.2	---	73.2 <sup>1</sup>
MW-7	72.2	---	73.2 <sup>1</sup>
MW-10	76.5	---	76.0 <sup>1</sup>
MW-11	76.5	---	75.8 <sup>1</sup>
MW-12	69.0	---	70.0 <sup>1</sup>
MW-13	72.2	---	73.2 <sup>1</sup>
MW-14	71.2	---	72.2 <sup>1</sup>
MW-15	70.0	---	71.0 <sup>1</sup>
BF-5	---	93.7	114.0 <sup>2</sup>
BF-6	---	93.4	113.0 <sup>2</sup>
BF-7	---	86.0	106.3 <sup>2</sup>
BF-8	---	93.7	114.0 <sup>2</sup>
BF-9	---	107.7	118.0 <sup>2</sup>
G-4	---	129.1	146.3 <sup>2</sup>
G-5	---	128.6	148.2 <sup>2</sup>
G-6	---	129.1	149.3 <sup>2</sup>
G-7	---	118.0	138.3 <sup>2</sup>
LG-2	---	129.1	149.4 <sup>2</sup>

<sup>1</sup> Below top of casing, measured in feet

<sup>2</sup> Below land surface, measured in feet



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**TABLE 0-5**  
**WELL HEAD ELEVATIONS**

<u>WELL ID</u>	<u>REFERENCE POINT ELEVATION</u>	<u>TOP OF VAULT ELEVATION</u>	<u>DATE SURVEYED</u>
MW-1	42.83	NA	01/12/87
MW-2	48.79	NA	01/12/87
MW-3	47.41	NA	01/12/87
MW-4	46.69	NA	01/12/87
MW-5	44.95	NA	01/12/87
MW-6	45.68	46.55	01/31/89
MW-7	47.42	48.05	01/31/89
MW-10	43.20	44.08	01/31/89
MW-11	42.69	43.39	01/31/89
MW-12	40.17	40.82	01/31/89
MW-13	42.34	42.96	01/31/89
MW-14	43.13	43.45	01/31/89
MW-15	40.51	41.26	01/31/89
BF-1	48.28	48.57	01/31/89
BF-2	49.49	49.79	01/31/89
BF-3	48.27	NA	01/12/87
BF-4	47.67	48.08	01/31/89
BF-5	39.37	40.55	01/31/89
BF-6	41.70	42.89	01/31/89
BF-7	42.64	43.14	01/31/89
BF-8	39.72	41.07	01/31/89
BF-9	48.69	49.86	01/31/89
G-1	46.66	47.07	01/31/89
G-2	43.46	43.74	01/31/89
G-3	49.69	49.91	01/31/89
G-4	39.70	40.40	01/31/89
G-5	41.71	42.82	01/31/89
G-6	42.54	43.27	01/31/89
G-7	39.88	40.77	01/31/89
LG-1	43.24	43.53	01/31/89
LG-2	44.61	45.25	01/31/89

NA Not available



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**APPENDIX P**

**GROUNDWATER SAMPLING JANUARY - FEBRUARY 1989**



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APPENDIX P

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TABLE P-1

## STATIC WATER LEVELS, JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

WELL ID	DATE	REFERENCE POINT ELEVATION (Feet msl) <sup>1</sup>	DEPTH TO WATER BELOW REFERENCE POINT (Feet)	WATER LEVEL ELEVATION (Feet msl) <sup>1</sup>	METHOD OF MEASURING
MW-1	01-31-89	42.83	66.07	-23.24	Flat tape sounder
MW-2	---	48.79	---	---	Flat tape sounder
MW-3	01-31-89	47.41	69.49	-22.08	Flat tape sounder
MW-4	01-31-89	46.69	68.94	-22.25	Flat tape sounder
MW-5	01-31-89	44.95	67.50	-22.55	Flat tape sounder
MW-6	01-31-89	45.68	68.38	-22.70	Flat tape sounder
MW-7	01-31-89	47.42	69.74	-22.32	Flat tape sounder
MW-10	01-31-89	43.20	65.34	-22.14	Flat tape sounder
MW-11	01-31-89	42.69	65.66	-22.97	Flat tape sounder
MW-12	01-31-89	40.17	63.24	-23.07	Flat tape sounder
MW-13	01-31-89	42.34	65.68	-23.34	Flat tape sounder
MW-14	01-31-89	43.13	66.61	-23.48	Flat tape sounder
MW-15	01-30-89	40.51	63.68	-23.17	Flat tape sounder
BF-1	01-31-89	48.28	70.02	-21.74	Flat tape sounder

<sup>1</sup> msl = mean sea level.

--- Deferred due to time constraints and health and safety considerations.



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TABLE P-1 (continued)  
 STATIC WATER LEVELS, JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

WELL ID	DATE	REFERENCE POINT ELEVATION (Feet msl) <sup>1</sup>	DEPTH TO WATER BELOW REFERENCE POINT (Feet)	WATER LEVEL ELEVATION (Feet msl) <sup>1</sup>	METHOD OF MEASURING
BF-2	01-31-89	49.49	71.50	-22.01	Flat tape sounder
BF-3	01-31-89	48.27	70.32	-22.05	Flat tape sounder
BF-4	01-31-89	47.67	69.87	-22.20	Flat tape sounder
BF-5	01-31-89	39.37	62.34	-22.97	Flat tape sounder
BF-6	01-31-89	41.70	64.86	-23.16	Flat tape sounder
BF-7	01-31-89	42.64	65.67	-23.03	Flat tape sounder
BF-8	01-30-89	39.72	62.39	-22.67	Flat tape sounder
BF-9	01-31-89	48.69	70.90	-22.21	Flat tape sounder
G-1	01-31-89	46.66	68.69	-22.03	Flat tape sounder
G-2	01-31-89	43.46	66.25	-22.79	Flat tape sounder
G-3	01-31-89	49.69	72.03	-22.34	Flat tape sounder
G-4	01-31-89	39.70	62.98	-23.28	Flat tape sounder
G-5	01-31-89	41.71	65.15	-23.44	Flat tape sounder
G-6	01-31-89	42.54	65.89	-23.35	Flat tape sounder
G-7	01-30-89	39.88	62.82	-22.94	Flat tape sounder

1 msl = mean sea level.



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TABLE P-1 (continued)  
STATIC WATER LEVELS, JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>WELL ID</u>	<u>DATE</u>	<u>REFERENCE POINT ELEVATION (Feet msl)<sup>1</sup></u>	<u>DEPTH TO WATER BELOW REFERENCE POINT (Feet)</u>	<u>WATER LEVEL ELEVATION (Feet msl)<sup>1</sup></u>	<u>METHOD OF MEASURING</u>
LG-1	01-31-89	42.24	66.11	-22.87	Flat tape sounder
LG-2	01-31-89	44.61	67.02	-22.41	Flat tape sounder

1 msl = mean sea level.



HARGIS & ASSOCIATES, INC.

TABLE P-2

## SAMPLING INFORMATION, JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

WELL ID	DATE	TIME PUMP ON	TIME OF SAMPLING	AVERAGE DISCHARGE RATE (gpm)	NUMBER OF GALLONS PER ONE CASING VOLUME	APPROXIMATE NUMBER OF GALLONS PURGED	ELECTRICAL CONDUCTIVITY (umhos/cm)	pH	TEMPERATURE °C
MW-6	01-31-89	12:15	13:23	0.4	7.8	27	5,250	6.54	23.2
MW-7	02-02-89	15:40	16:30	0.5	6.5	21.5	4,700	6.53	21.3
MW-10	02-03-89	11:57	12:42	0.5	7	21	2,125	7.16	21.2
MW-11	02-03-89	08:40	13:22	*	6.8	33	2,750	6.95	21.9
MW-12	02-02-89	09:08	11:13	0.5	8.2	26	2,000	6.93	21.7
MW-13	02-01-89	11:10	12:55	0.4	7.2	23	2,375	6.76	21.5
MW-14	02-01-89	15:40	17:28	0.4	4.1	15	2,300	6.82	21.4
MW-15	01-30-89	16:55	18:02	0.5	8.7	28	2,775	7.00	22.1
BF-5	02-02-89	09:14	09:35	7.7	45.2	168	625	8.29	21.1
BF-6	02-01-89	11:27	11:47	7.5	39	178	1,225	7.62	21.5
BF-7	02-01-89	15:55	16:15	7.0	32.7	147	1,200	7.39	21.6
BF-8	01-30-89	16:13	16:30	7.8	41	140	825	7.85	22.6
BF-9	02-02-89	13:59	14:50	7.8	84	407	800	8.04	21.2
G-4	02-02-89	09:53	10:20	8.5	85.2	240	625	8.08	21.5
G-5	02-01-89	13:12	13:42	8.6	82.6	268	725	7.95	21.7
G-6	02-01-89	16:35	17:05	8.1	80.6	249	650	8.13	21.8
G-7	01-30-89	14:25	14:57	8.5	76	295	525	8.16	23.1
LG-2	02-02-89	12:10	12:40	8.8	89.6	272	465	8.14	21.8

Notes

\* = Well pumped dry, allowed to recover, variable discharge rate.

gpm = gallons per minute



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TABLE P-3

IDENTIFICATION OF FIELD DUPLICATE SAMPLES  
JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>SAMPLE COLLECTED FROM WELL #</u>	<u>ACTUAL SAMPLE TIME</u>	<u>DUPLICATE SAMPLE ID</u>	<u>FICTITIOUS TIME RECORDED FOR DUPLICATE</u>
01-30-89	G-7	14:57	G-700	15:00
01-31-89	MW-6	13:23	MW-600	12:00
02-01-89	BF-6	11:47	BF-600	10:15
02-02-89	LG-2	12:40	LG-200	09:05
02-03-89	MW-11	13:22	MW-1100	09:00



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TABLE P-4

IDENTIFICATION OF LABORATORY SPLIT SAMPLES<sup>1</sup>  
JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>SAMPLE LOCATION</u>	<u>SAMPLE TIME</u>
01-30-88	G-7	14:57
01-31-89	MW-6	13:23
02-01-89	BF-6	11:47
02-02-89	LG-2	12:40
02-03-89	MW-11	13:22

<sup>1</sup> Split samples were shipped to Analytical Technologies, Inc. for EPA Methods 608 and 624 analyses.



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**TABLE P-5**  
**IDENTIFICATION OF FIELD BLANKS**  
**JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND**

<u>DATE</u>	<u>SAMPLE ID</u>	<u>SAMPLE PREPARATION LOCATION</u>	<u>FICTITIOUS TIME RECORDED FOR FIELD BLANK</u>	<u>BLANK WATER SOURCE</u>
01-30-89	WB-1	15:15	G-7	Brown and Caldwell
01-31-89	WB-1	13:30	MW-6	Brown and Caldwell
02-01-89	WB-1	12:10	BF-6	Brown and Caldwell
02-02-89	WB-1	12:55	LG-2	Brown and Caldwell
02-03-89	WB-1	14:00	MW-11	Brown and Caldwell



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TABLE P-6

IDENTIFICATION OF TRIP BLANKS  
JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>SAMPLE DATE</u>	<u>FICTITIOUS SAMPLE TIME</u>	<u>SAMPLE ID</u>	<u>SAMPLE PREPARED BY</u>	<u>DATE SAMPLE PREPARED</u>
01-30-89	15:30	TB-1	Brown and Caldwell	01-26-89
01-31-89	14:00	TB-1	Brown and Caldwell	01-26-89
02-01-89	11:40	TB-1	Brown and Caldwell	01-26-89
02-02-89	13:00	TB-1	Brown and Caldwell	01-26-89
02-03-89	15:00	TB-1	Brown and Caldwell	01-26-89



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**TABLE P-7**  
**WEATHER DESCRIPTIONS**  
**JANUARY-FEBRUARY 1989 GROUNDWATER SAMPLING ROUND**

<u>DATE</u>	<u>TIME</u>	<u>SAMPLED WELL ID'S</u>	<u>WEATHER CONDITION</u>
01-30-89	14:00	G-7, MW-15, BF-8	Clear, 68°F, wind from west at 3-5 mph
01-31-89	12:00	MW-6	Clear, 76°F, wind from west at 3 mph
02-01-89	09:00	BF-6, MW-13	Mostly cloudy, 62°F, wind from west at 3 mph
02-01-89	13:15	G-5	Cloudy, 62°F, wind from west at 3 mph
02-01-89	16:00	MW-14, BF-7	Cloudy, 62°F, wind from west at 5 mph
02-01-89	17:00	G-6	Cloudy, 60°F, wind from west at 5 mph
02-02-89	08:55	BF-5, MW-12, G-4	Partly cloudy, 68°F, wind from west at 3-5 mph
02-02-89	12:05	LG-2, BF-9, MW-7	Partly cloudy, 65°F, wind from west at 5-15 mph
02-03-89	09:00	MW-11, MW-10	Cloudy, light rain, 56°F, wind from west at 3-5 mph



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**TABLE P-8**  
**ELECTRICAL CONDUCTIVITY METER CALIBRATIONS**  
**JANUARY-FEBRUARY 1989 ON-SITE GROUNDWATER SAMPLING ROUND**

<u>DATE</u>	<u>TIME</u>	<u>CALIBRATION SOLUTION CONCENTRATION<sup>1</sup></u>	<u>CORRESPONDING E-C METER READING<sup>2</sup></u>	<u>TEMPERATURE OF SOLUTION C°</u>
01-30-89	13:00	1,000	1,000	23.5
01-30-89	13:05	10,000	9,500	23.5
01-31-89	10:45	1,000	800	16
01-31-89	10:50	10,000	8,000	16
02-01-89	08:54	1,000	775	12
02-01-89	08:55	10,000	7,750	12
02-02-89	08:45	1,000	800	12.5
02-02-89	08:45	10,000	7,775	12.5
02-03-89	09:00	1,000	750	12.5
02-03-89	09:00	10,000	7,500	12.5

- <sup>1</sup> YSI conductivity calibration solution (micromhos per centimeter)  
<sup>2</sup> Yellow Springs (YSI) Model 33 S-C-T meter (micromhos per centimeter)



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10720

Appendix Q



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**APPENDIX Q**

**GROUNDWATER SAMPLING FEBRUARY 1989**



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## APPENDIX Q

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TABLE Q-1

STATIC WATER LEVELS, FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

WELL ID	DATE	REFERENCE POINT ELEVATION (Feet msl) <sup>1</sup>	DEPTH TO WATER BELOW REFERENCE POINT (Feet)	WATER LEVEL ELEVATION (Feet msl) <sup>1</sup>	METHOD OF MEASURING
MW-1	02-07-89	42.83	66.07	-23.24	Flat tape sounder
MW-2	02-07-89	48.79	71.44	-22.65	Steel tape
MW-3	02-07-89	47.41	69.56	-22.15	Flat tape sounder
MW-4	02-07-89	46.69	69.00	-22.31	Flat tape sounder
MW-5	02-07-89	44.95	67.50	-22.55	Steel tape
MW-6	02-07-89	45.68	68.47	-22.79	Flat tape sounder
MW-7	02-07-89	47.42	69.99	-22.57	Flat tape sounder
MW-10	02-07-89	43.20	65.47	-22.27	Flat tape sounder
MW-11	02-07-89	42.69	65.73	-23.04	Flat tape sounder
MW-12	02-07-89	40.17	63.29	-23.12	Flat tape sounder
MW-13	02-07-89	42.34	65.77	-23.43	Flat tape sounder
MW-14	02-07-89	43.13	66.68	-23.55	Flat tape sounder
MW-15	02-06-89	40.51	63.74	-23.23	Flat tape sounder
BF-1	02-07-89	48.28	70.13	-21.85	Flat tape sounder
BF-2	02-07-89	49.49	71.62	-22.13	Flat tape sounder
BF-3	02-07-89	48.27	70.44	-22.17	Flat tape sounder
BF-4	02-07-89	47.67	69.98	-22.31	Flat tape sounder
BF-5	02-07-89	39.37	62.44	-23.07	Flat tape sounder
BF-6	02-07-89	41.70	65.04	-23.34	Flat tape sounder

<sup>1</sup> msl = mean sea level



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TABLE Q-1 (continued)  
 STATIC WATER LEVELS, FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>WELL ID</u>	<u>DATE</u>	<u>REFERENCE POINT ELEVATION (Feet msl)<sup>1</sup></u>	<u>DEPTH TO WATER BELOW REFERENCE POINT (Feet)</u>	<u>WATER LEVEL ELEVATION (Feet msl)<sup>1</sup></u>	<u>METHOD OF MEASURING</u>
BF-7	02-06-89	42.64	65.85	-23.21	Flat tape sounder
BF-8	02-07-89	39.72	62.51	-22.79	Flat tape sounder
BF-9	02-07-89	48.69	70.72	-22.03	Flat tape sounder
G-1	02-07-89	46.66	68.78	-22.12	Flat tape sounder
G-2	02-07-89	43.46	66.33	-22.87	Flat tape sounder
G-3	02-07-89	49.69	72.10	-22.41	Flat tape sounder
G-4	02-07-89	39.70	63.04	-23.34	Flat tape sounder
G-5	02-07-89	41.71	65.23	-23.52	Flat tape sounder
G-6	02-07-89	42.54	65.93	-23.39	Flat tape sounder
G-7	02-06-89	39.88	62.85	-22.97	Flat tape sounder
LG-1	02-07-89	43.24	66.18	-22.94	Flat tape sounder
LG-2	02-07-89	44.61	67.09	-22.48	Flat tape sounder

<sup>1</sup> msl = mean sea level



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TABLE Q-2

## SAMPLING INFORMATION, FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

WELL ID	DATE	TIME PUMP ON	TIME OF SAMPLING	AVERAGE DISCHARGE RATE (gpm)	NUMBER OF GALLONS PER ONE CASING VOLUME	APPROXIMATE NUMBER OF GALLONS PURGED	ELECTRICAL CONDUCTIVITY (umhos/cm)	pH	TEMPERATURE °C
MW-1	02-08-89	10:05	10:36	0.4	4.5	17	8,000	6.59	23.0
MW-2+	02-09-89	12:58	12:58	0.4	3.4	20	---	---	---
MW-3	02-08-89	16:34	16:55	0.5	3.1	9	1,150	6.87	21.0
MW-4	02-08-89	17:04	17:29	0.5	3.8	11	2,200	6.69	22.0
MW-5	02-07-89	15:35	15:56	0.5	3.25	10	3,300	6.54	22.5
MW-6	02-08-89	16:45	17:40	0.4	7.5	22.5	4,800	6.70	22.3
MW-7	02-09-89	15:44	16:30	0.4	6.5	21	4,320	6.64	21.5
MW-10	02-10-89	09:41	10:55	0.3	7	21	2,250	6.93	22.0
MW-11	02-10-89	09:25	11:00	0.1	6.8	23	2,350	7.18	21.9
MW-12	02-07-89	17:01	18:39	0.4	8.3	25	19:50	6.65	20.9
MW-13	02-08-89	11:32	13:15	0.3	11	33	22:50	6.69	21.1
MW-14	02-09-89	10:50	11:30	0.3	4.1	12.5	2,200	6.71	21.1
MW-15	02-06-89	16:02	17:40	0.3	8.7	25	2,500	7.11	20.7
BF-1	02-08-89	15:53	16:14	6.4	35	139	950	7.52	21.0
BF-2	02-08-89	14:25	14:45	5.6	34.4	129	850	7.33	22.0
BF-3	02-08-89	13:44	14:02	6.2	34.8	143	1,250	7.31	21.5
BF-4	02-08-89	13:14	13:34	6.0	34.4	150	1,000	7.38	22.5
BF-5	02-07-89	17:22	17:40	9.1	45.2	135	700	7.97	21.3
BF-6	02-08-89	13:50	14:20	8.7	39	250	1,250	7.0	20.9

Notes

gpm = gallons per minute

--- = In order to preserve field equipment, parameters were not measured in water with high target chemical concentrations.

+ = Approximately 240 ml of dense free product was purged from bottom of well. A sample of free product was submitted to the lab for analysis.



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TABLE 0-2 (continued)  
SAMPLING INFORMATION, FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

WELL ID	DATE	TIME PUMP ON	TIME OF SAMPLING	AVERAGE DISCHARGE RATE (gpm)	NUMBER OF GALLONS PER ONE CASING VOLUME	APPROXIMATE NUMBER OF GALLONS PURGED	ELECTRICAL CONDUCTIVITY (umhos/cm)	pH	TEMPERATURE °C
BF-7	02-09-89	13:08	13:10	9.1	32.5	145	1,200	7.36	22.0
BF-8	02-06-89	14:42	15:12	7.3	41	125	800	8.27	21.3
BF-9	09-09-89	16:16	16:59	6	84.2	294	800	7.86	22.0
BF-9*	02-10-89	12:09	12:23	5.7	84.2	79	800	7.86	22.0
G-1	02-07-89	16:52	17:34	5.0	59.9	210	410	9.33	20.0
G-2	02-08-89	11:08	12:00	4.4	71.0	252	575	7.99	22.5
G-3	02-08-89	14:35	15:12	5.3	61.1	228	485	7.98	22.5
G-4	02-07-89	17:22	18:05	6.6	85.1	255	700	7.10	21.5
G-5	02-08-89	12:23	13:05	5.6	75	260	820	7.74	21.5
G-6	02-09-89	11:06	11:40	10	80.6	250	680	7.89	21.3
G-7	02-06-89	13:34	14:05	7.7	76	240	475	8.24	22.7
LG-1	02-08-89	10:12	12:50	1.6	92.8	296	340	8.81	22.5
LG-2	02-06-89	17:16	17:59	7.1	89.7	348	470	8.76	22.0
LG-2*	02-10-89	12:05	12:37	6.5	90	190	580	7.87	23.2

\* Common ion nitrate sampling only



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TABLE Q-3

IDENTIFICATION OF FIELD DUPLICATE SAMPLES  
FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>SAMPLE COLLECTED FROM WELL #</u>	<u>ACTUAL SAMPLE TIME</u>	<u>DUPLICATE SAMPLE ID</u>	<u>FICTITIOUS TIME RECORDED FOR DUPLICATE</u>
02-06-89	BF-8	15:12	BF-800	09:00
02-07-89	BF-5	17:40	BF-500	18:40
02-08-89	G-5	13:05	G-500	13:05
02-09-89	MW-14	11:30	MW-1400	12:30
02-10-89	MW-10	10:35	MW-1000	13:00



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**TABLE Q-4**  
**IDENTIFICATION OF LABORATORY SPLIT SAMPLES<sup>1</sup>**  
**FEBRUARY 1989 GROUNDWATER SAMPLING ROUND**

<u>DATE</u>	<u>SAMPLE LOCATION</u>	<u>SAMPLE TIME</u>
02-06-89	BF-8	15:12
02-07-89	BF-5	17:40
02-08-89	G-5	13:05
02-09-89	MW-14	11:30

<sup>1</sup> Split samples were shipped to Analytical Technologies, Inc. for EPA Methods 608 and 624 analyses.



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TABLE Q-5  
IDENTIFICATION OF FIELD BLANKS  
FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>SAMPLE ID</u>	<u>SAMPLE PREPARATION LOCATION</u>	<u>FICTITIOUS TIME RECORDED FOR FIELD BLANK</u>	<u>BLANK WATER SOURCE</u>
02-06-89	WB-1	BF-8	10:00	Brown and Caldwell
02-07-89	WB-1	BF-5	19:44	Brown and Caldwell
02-08-89	WB-1	G-5	14:20	Brown and Caldwell
02-09-89	WB-1	MW-14	09:00	Brown and Caldwell
02-10-89	WB-1	MW-10	11:00	Brown and Caldwell



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**TABLE Q-6**  
**IDENTIFICATION OF TRIP BLANKS**  
**FEBRUARY 1989 GROUNDWATER SAMPLING ROUND**

<u>SAMPLE DATE</u>	<u>FICTITIOUS SAMPLE TIME</u>	<u>SAMPLE ID</u>	<u>SAMPLE PREPARED BY</u>	<u>DATE SAMPLE PREPARED</u>
02-06-89	11:00	TB-1	Brown and Caldwell	01-26-89
02-07-89	15:55	TB-1	Brown and Caldwell	01-26-89
02-08-89	09:00	TB-2	Brown and Caldwell	01-26-89
02-09-89	09:00	TB-1	Brown and Caldwell	02-03-89
02-10-89	08:36	TB-1	Brown and Caldwell	02-03-89



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TABLE Q-7  
WEATHER DESCRIPTIONS  
FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>TIME</u>	<u>SAMPLED WELL ID'S</u>	<u>WEATHER CONDITION</u>
02-07-89	10:00	MW-1, LG-1	Cloudy, slight drizzle, 52°F, wind from north and east at 5 mph
02-07-89	15:30	MW-5	Cloudy, 58°F, wind from east at 3-5 mph
02-07-89	16:50	G-1	Cloudy, 52°F, wind from east at 3-5 mph
02-07-89	17:30	MW-12	Cloudy, cool, wind from east at 10-20 mph
02-07-89	18:00	BF-5, G-4	Cloudy, cool, wind from east at 20 mph
02-08-89	11:30	G-2, BF-4, BF-3, BF-2, G-2, BF-1, MW-3, MW-4	Rain, drizzle, 49°F, wind from north at 10 mph
02-08-89	12:00	MW-13	Cloudy, cool
02-08-89	12:44	G-5	Cloudy, cool, wind from north at 10 mph
02-08-89	14:00	BF-6	Cloudy, cool, wind from northwest at 10 mph
02-08-89	16:30	MW-6	Partly cloudy, cool, wind from northwest at 5 mph
02-09-89	11:00	MW-14	Rain hard, cool
02-09-89	12:00	MW-2, BF-9, LG-2	Cloudy, intermittent scattered showers, 50°F, wind from north and east



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TABLE Q-7 (continued)  
WEATHER DESCRIPTIONS FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>TIME</u>	<u>SAMPLED WELL ID'S</u>	<u>WEATHER CONDITION</u>
02-09-89	11:30	MW-14, BF-7, G-6 MW-7	Cool, rainy
02-10-89	10:30	MW-11	Warm, sunny
02-10-89	09:30	MW-10	Partly cloudy, 59°, wind from west at 5 mph



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TABLE Q-8

ELECTRICAL CONDUCTIVITY METER CALIBRATIONS  
FEBRUARY 1989 ON-SITE GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>TIME</u>	<u>CALIBRATION SOLUTION CONCENTRATION<sup>1</sup></u>	<u>CORRESPONDING E-C METER READING<sup>2</sup></u>	<u>TEMPERATURE OF SOLUTION C°</u>
02-06-89	10:19	1,000	750	5.5
02-06-89	10:19	10,000	7,250	5.5
02-07-89	14:47	1,000	810	15.8
02-07-89	14:47	10,000	7,500	15.8
02-07-89	15:26	1,000	850	16
02-07-89	15:26	10,000	8,500	16
02-08-89	09:23	1,000	675	10.6
02-08-89	09:23	10,000	6,500	10.0
02-08-89	09:33	1,000	750	11.0
02-08-89	09:33	10,000	7,500	11.0
02-09-89	08:44	1,000	780	11.0
02-09-89	08:44	10,000	7,800	11.0
02-09-89	16:10	1,000	750	14.5
02-09-89	16:10	10,000	7,500	14.5
02-10-89	08:31	1,000	800	10.5
02-10-89	08:31	10,000	8,000	10.5
02-10-89	08:39	1,000	800	12.0
02-10-89	08:39	10,000	8,000	12.0

<sup>1</sup> YSI conductivity calibration solution (micromhos per centimeter)<sup>2</sup> Yellow Springs (YSI) Model 33 S-C-T meter (micromhos per centimeter)

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TABLE Q-9  
IDENTIFICATION OF EPA SPLIT SAMPLES  
FEBRUARY 1989 GROUNDWATER SAMPLING ROUND

<u>DATE</u>	<u>SAMPLE LOCATION</u>	<u>SAMPLE TIME</u>	<u>NUMBER OF CONTAINERS</u>	<u>TYPE OF CONTAINERS</u>	<u>SAMPLES PROVIDED TO</u>
02-06-89	G-7	14:05	2	40-ml VOA vials	R. Lubke-M&E
			2	1-l amber glass	R. Lubke-M&E
02-07-89	BF-5	17:40	2	40-ml VOA vials	R. Lubke-M&E
			2	1-l amber glass	R. Lubke-M&E
02-07-89	MW-5	15:56	4	40-ml VOA vials	R. Lubke-M&E
			4	1-l amber glass	R. Lubke-M&E
02-08-89	MW-1	10:36	4	40-ml VOA vials	C. Noling-M&E
			4	1-l amber glass	C. Noling-M&E
02-09-89	MW-2	12:58	2	40-ml VOA vials	C. Noling-M&E



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November 1, 1988

FIELD DATA SUBMITTAL  
PHASE 2, REMEDIAL INVESTIGATIVE WORK  
PHASE 2A  
MONTROSE SITE  
TORRANCE, CALIFORNIA

VOLUME THREE  
SEPTEMBER 1988 - NOVEMBER 1988  
ON-SITE SOIL SAMPLING



**HARGIS+ASSOCIATES, INC.**  
Consultants in Hydrogeology

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TOXIC SUBSTANCES CONTROL DIVISION  
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FIELD DATA SUBMITTAL  
PART 2, REMEDIAL INVESTIGATIVE WORK  
PHASE 2A  
MONTROSE SITE  
TORRANCE, CALIFORNIA

VOLUME THREE  
SEPTEMBER 1988 - NOVEMBER 1988  
ON-SITE SOIL SAMPLING

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K	LITHOLOGIC LOGS FOR SOIL BORINGS AT THE MONTROSE SITE
L	SAMPLE IDENTIFICATION INFORMATION



HARGIS + ASSOCIATES, INC.

**VOLUME THREE**  
**SEPTEMBER 1988 - NOVEMBER 1988**  
**ON-SITE SOIL SAMPLING**

**INTRODUCTION**

The following are field data collected during the Part 2 Phase 2A Remedial Investigative Work conducted at and in the vicinity of the Montrose Chemical Company (Montrose) site in Torrance, California. This December 1988 submittal consists of three volumes, respectively containing field data collected during the Dominguez Channel sediment survey and sampling, the off-site soil sampling, and the on-site soil sampling activities. A fourth volume containing field data collected during Part 2 Phase 2A monitor well installation and groundwater sampling activities will be submitted in early 1989 subsequent to the completion of those activities. The companion raw analytical data submittals will also be organized in four volumes in parallel to the field data submittal.

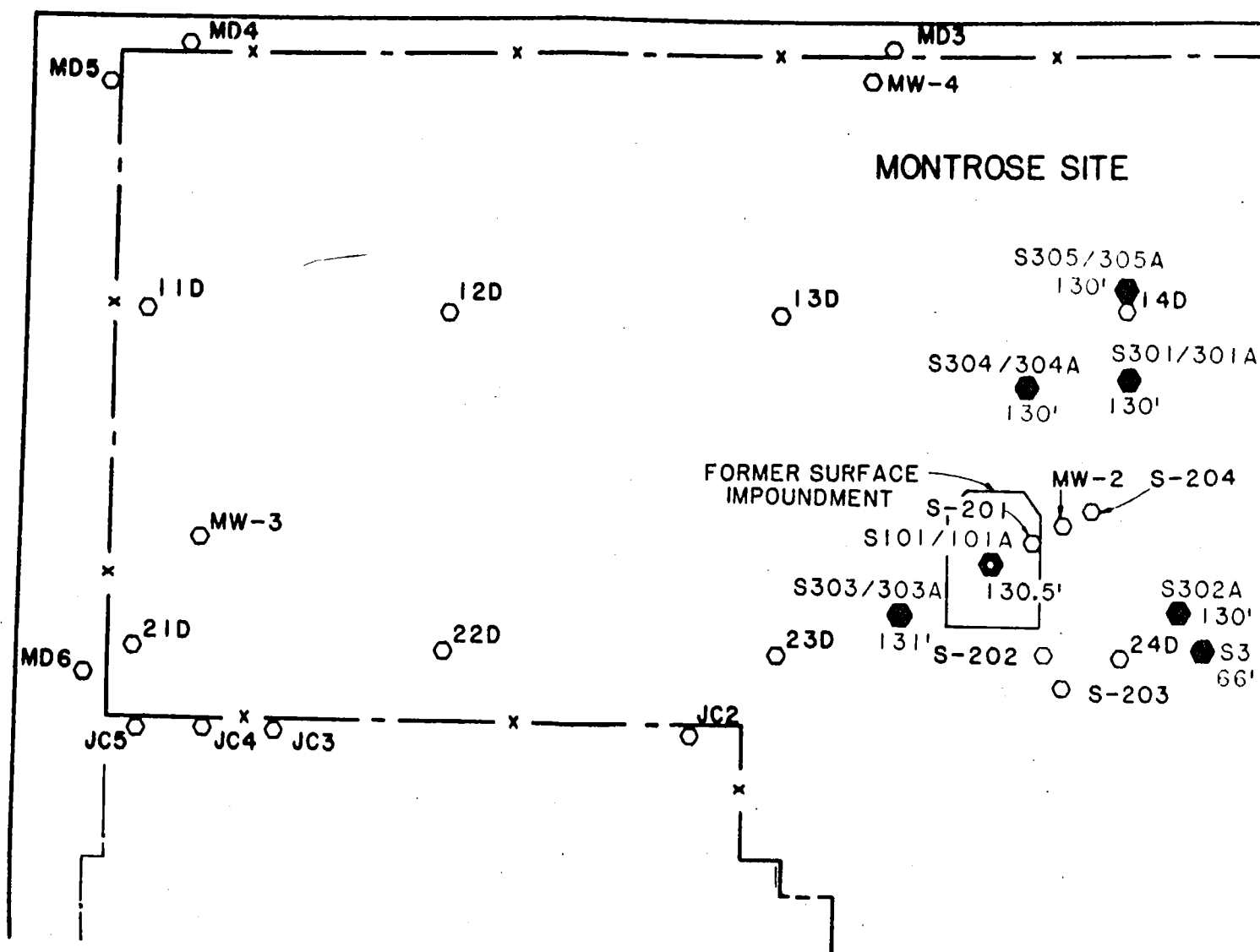
Volume three of the Phase 2A data submittal includes lithologic logs of on-site soil borings, on-site soil sample identification tables, OVA results and a soil boring location map. On-site soil borings were drilled in two episodes. The upper 60 feet of soil was sampled and logged using a hollow-stem auger drill rig. Soil exploration below 60 feet was accomplished using a Christenson wireline core barrel. On-site soil samples were submitted to Brown and Caldwell Laboratories in Pasadena for analysis.

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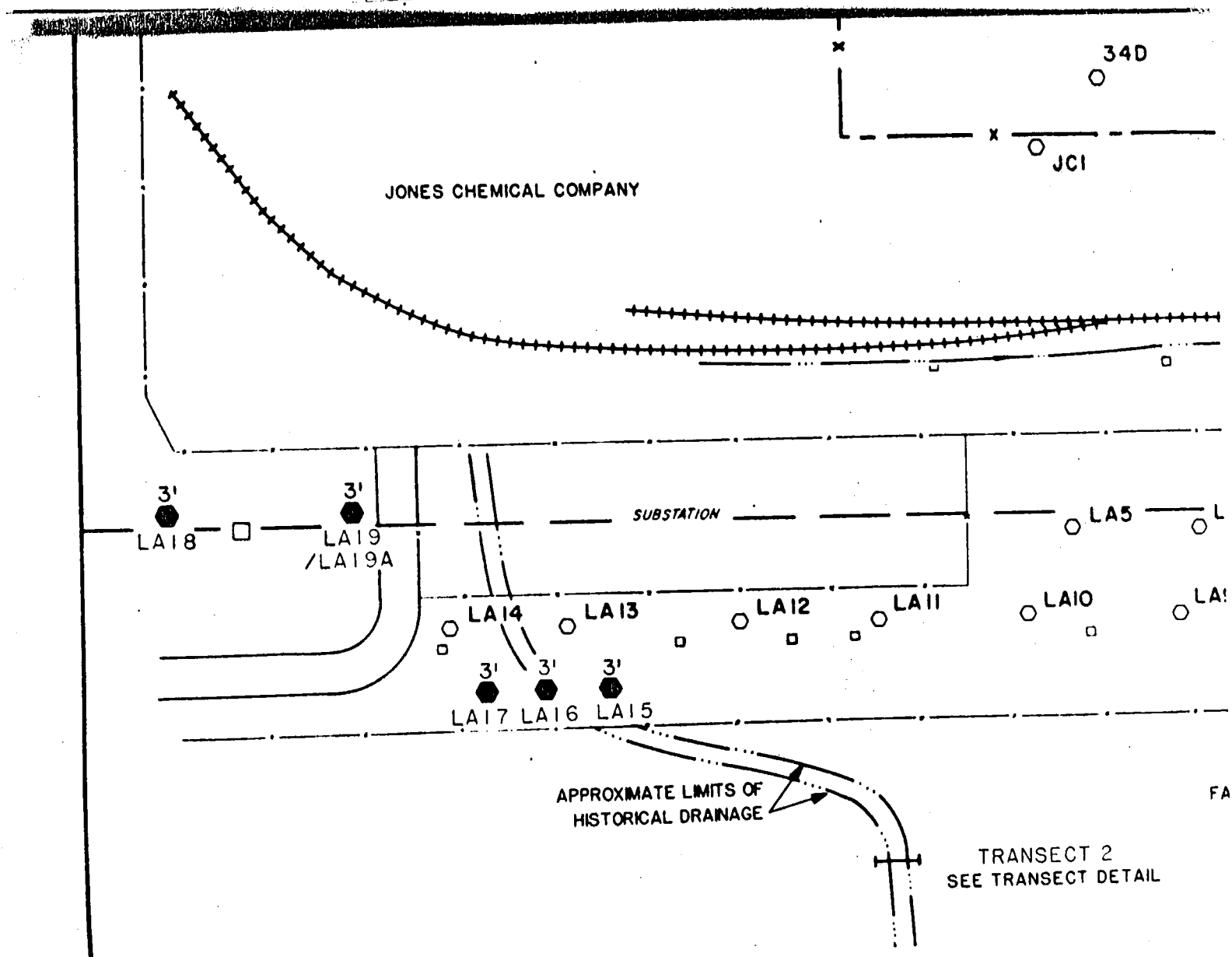
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Illustrations



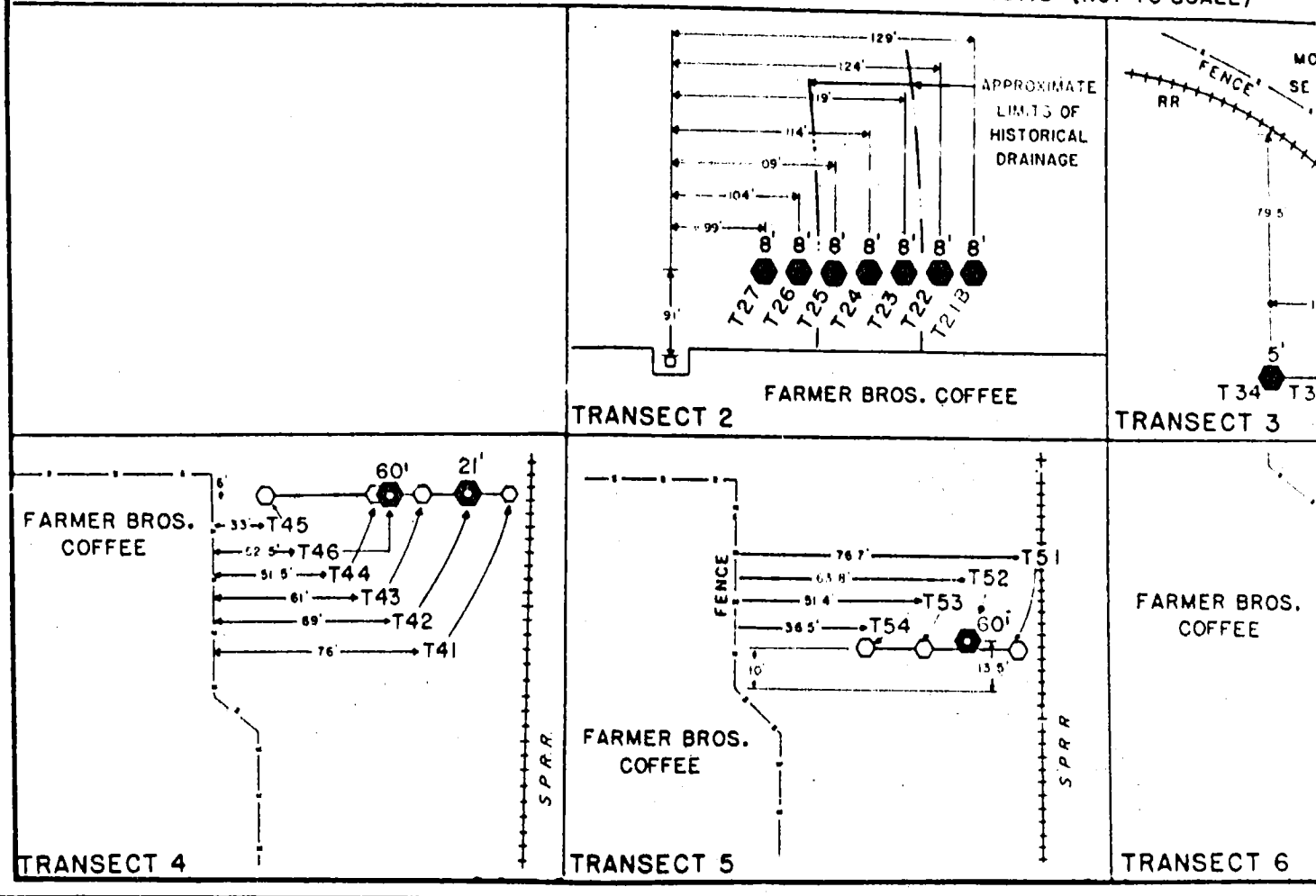


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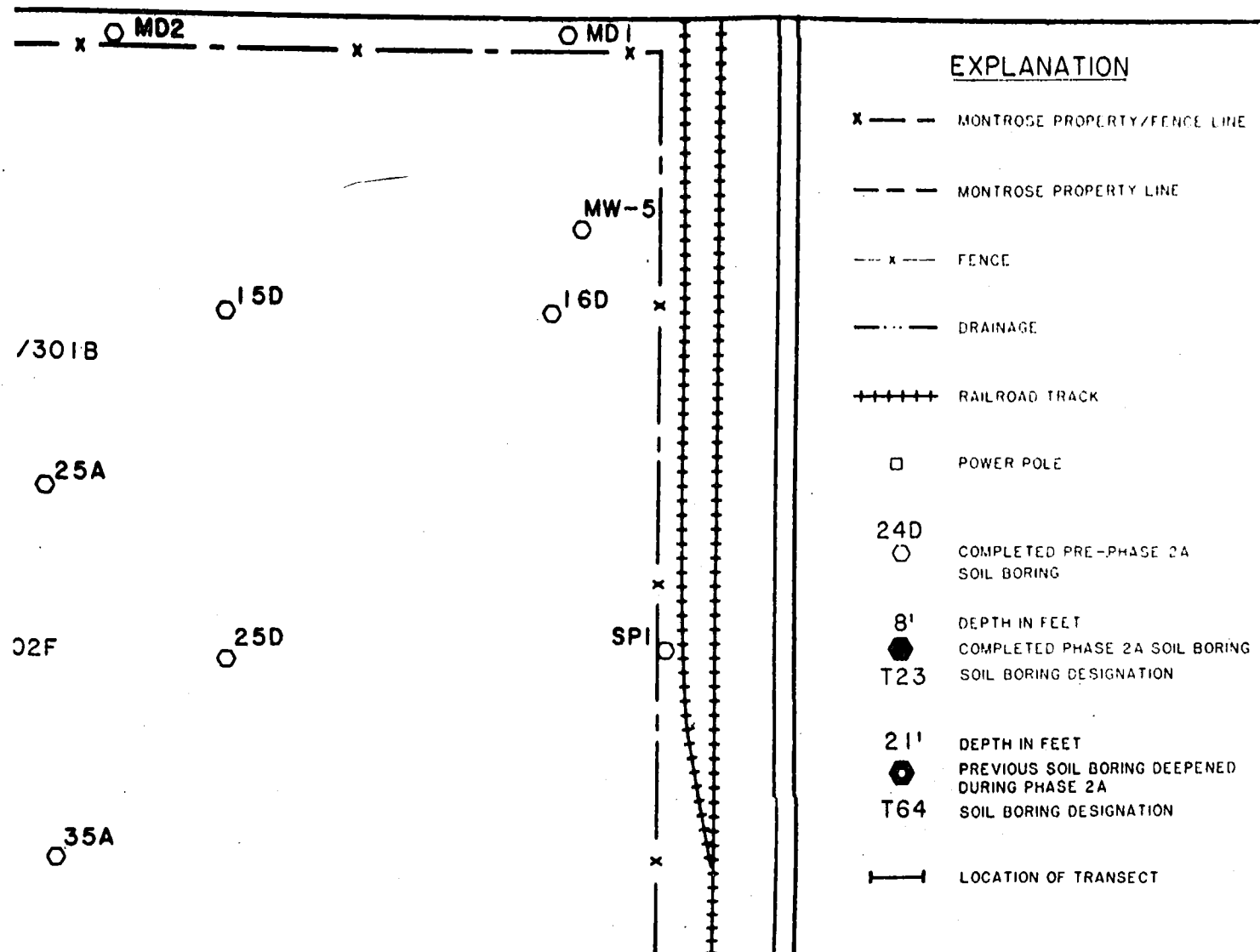


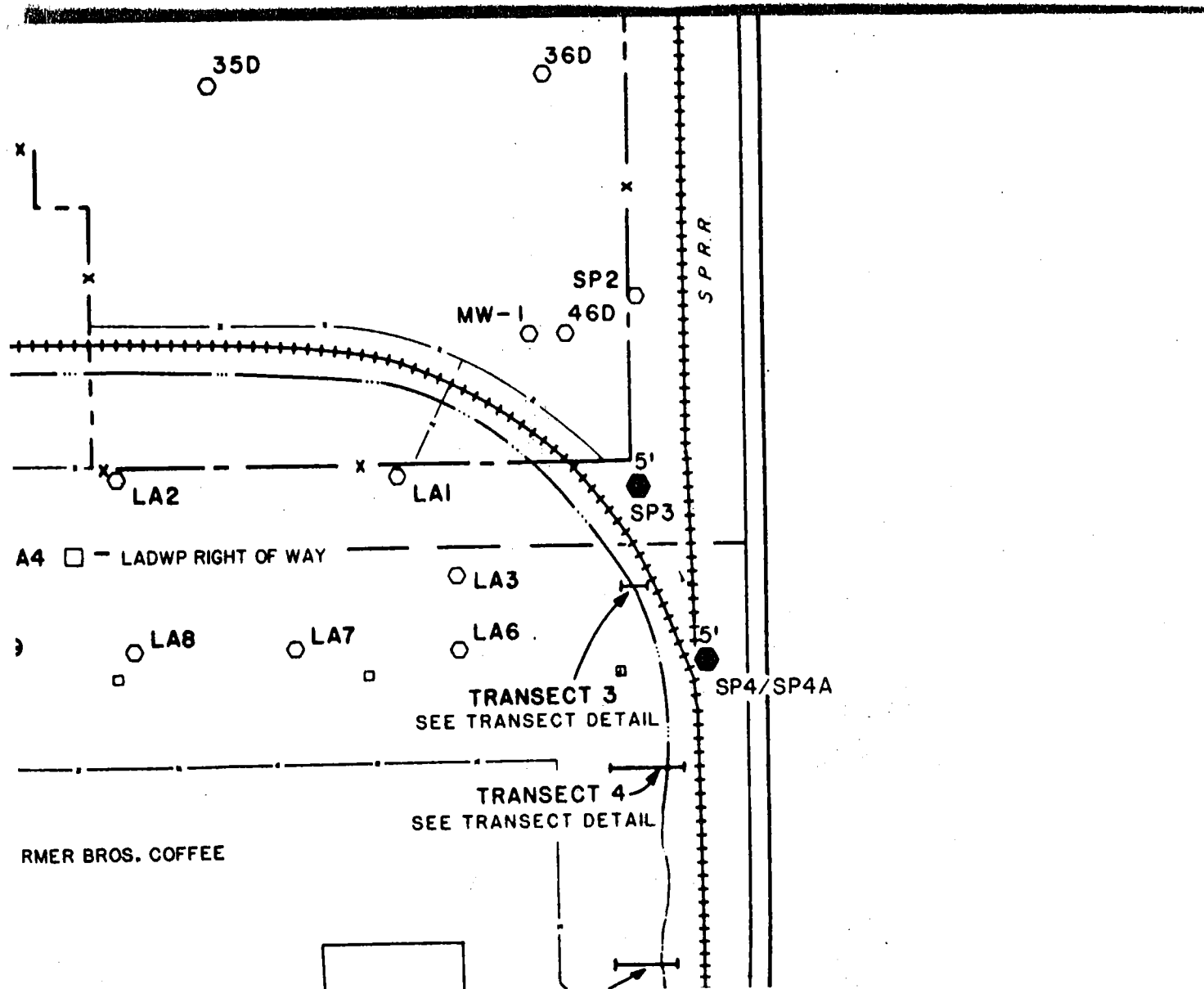
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# DETAIL OF TRANSECT SAMPLE LOCATIONS (NOT TO SCALE)

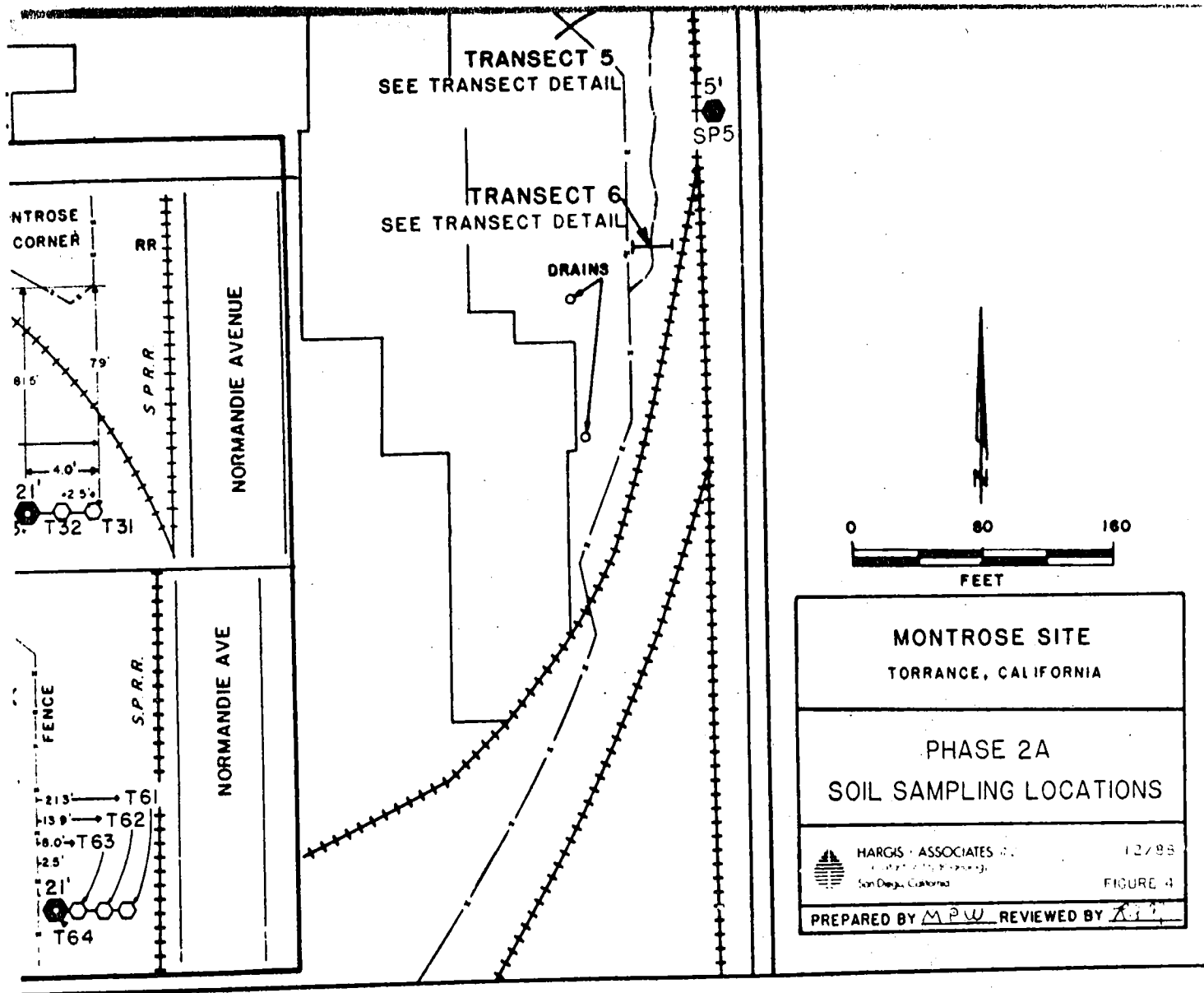


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Appendix J



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## APPENDIX J

### EXPLANATION FOR LOGS

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APPENDIX J

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### EXPLANATION FOR LOGS

Soil description were compiled based on soil obtained from the split tube sampler or the continuous core device. Blow counts for the split tube sample were recorded per 6-inch interval penetrated. Sample recovery was recorded as the ratio of soil recovered to the total interval driven or cored. Color was described using the Munsell Soil Color Chart while grain size was estimated using the June 1982 American Geological Institute Data Sheets. Sample numbers were assigned using the soil boring location followed by the depth at the lower end of the brass tube.

An Acker AD2 hollow-stem auger drill rig equipped with 8-inch O.D. augers was used to collect soil from borings S303 and S305 to a depth of approximately 60 feet. Samples were collected with a split-tube drive sampler or a hollow auger continuous core device. The split tube drive sampler was advanced using a 140-pound hammer.

A Mobil B-61 hollow-stem auger rig equipped with 8-inch O.D. augers was used to collect soil from borings S301, S302F and S304 to a depth of approximately 60 feet. Samples were collected with a split-tube drive sampler or a hollow auger continuous core device. The split type drive sample was advanced using a 140-pound hammer. Samples were taken at designated sampling intervals as specified in Table 3 of the SAP (Hargis + Associates, Inc., 1988). Cement grout slurry was used to backfill each borehole above the water table. Neat cement was used to backfill each soil boring below the water table.

A soil sample from S301B was obtained using a hand auger and a hand-driven drive sampler fitted with one 6-inch long 2-inch diameter thin-wall brass tubes.

A Longyear wire-line core barrel was used with the Acker AD2 drilling to collect soil samples below the water table in borings S303 and S305. This method of coring below the water table was discontinued due to poor



recovery. A Christenson core barrel was used in place of the Longyear. Because the Christenson core barrel was used with an Ingersoll-Rand TH100 mud rotary drill rig, a separate boring was drilled adjacent to the hollow-stem auger borings. Soil borings S301A, S302A, S303A, S304A, S305A, and S101A were drilled using the Christenson core barrel. Soil samples collected from the core barrel were placed in clean glass jars.

A Century Model OVA 128 flame ionization-type analyzer or a HNU Model P1 101 photo ionization-type analyzer was used for field measurement of organic vapors in the soil samples. OVA readings follow the procedures outline in the QAPP (Hargis + Associates, 1988). The OVA readings in equivalent parts per million of methane are presented on the logs at the depth interval sampled. The soil OVA background readings are deducted when reported values are below 50 ppm.

The laboratory was instructed to obtain soil aliquots for analysis from the bottom of the brass tube for the original sample and from the top of the adjoining brass tube for the duplicate and split samples. Sample identification tables are provided in Appendix L.

Soil boring locations are depicted on Figure 4.

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Appendix K



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**APPENDIX K**

**LITHOLOGIC LOGS FOR SOIL BORINGS  
AT THE MONTROSE SITE**

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## APPENDIX K

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K-6	LOG OF SOIL BORING S-302F
K-7	LOG OF SOIL BORING S-303
K-8	LOG OF SOIL BORING S-303A
K-9	LOG OF SOIL BORING S-304
K-10	LOG OF SOIL BORING S-304A
K-11	LOG OF SOIL BORING S-305
K-12	LOG OF SOIL BORING S-305A

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TABLE K-1  
LOG OF SOIL BORING S101A

Date: November 1, 1988

Weather: Clear, warm, light breeze from west

Drill Rig: Ingersoll-Rand TH100, 5 1/2 -inch O.D. core barrel

Sample Method: Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Tricone mud rotary drill to 33.0 Feet			
33.0 - 39.0	Continuous Core; R=5.8/6.0	34/160	33.0 - 35.1 SILTY SAND (SM): Light olive brown, 2.5 Y 5/4, wet, dense, fine-grained.
		35.3/360	
		36/320	35.1 -39.0 FOSSILIFEROUS SAND (SP): Light yellowish brown, 2.5 Y 6/4, dense to hard, wet, fine- to coarse- grained, shell fragments broken angular, layered, less than 1/4 inches thick, oysters, intermittent 0.2 feet thick cemented layers.
		37/240	
		37.7/320	
		38.7/340	
			At 35.2 stained weak red, 10 YR 5/4.
			At 35.6 - 35.8, stained weak red, 10 YR 5/4.
			At 35.7 - 35.8 SILTY SAND (SM): SAME AS 33.0 - 35.1.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
60.0 - 65.0	Continuous Core; R=4.4/5.0	61.9/340	60.0 - 63.5 SAND (SP): SAME AS 55.0 - 60.0, except light olive brown, 2.5 Y 5/6, moist.  At 60.35 Very thin 0.05 silt, orange.  At 60.8 SAND (SP): SAME AS 55.0 - 60.0, except olive, 5 Y 4/4.  At 63.5 SILT (ML): Olive, 5 Y 5/4, moist, stiff, 0.15 feet thick, orange oxide staining at top of silt.
		62.9/420	
		63.4/420	
		63.9/380	
		65.5/400	
		66.5/370	
			63.75 - 64.4 SILTY SAND (SM): Olive, 5 Y 4/3, moist, dense, fine-grained, trace mica, with dark gray laminations.  At 64.3 SILT (ML): SAME AS 63.5, thin, <0.01 foot.
65.0 - 70.0	Continuous Core; R=4.9/5.0	67.5/360	65.0 - 69.4 SAND (SP): Olive, 5 Y 4/3, moist, dense, fine-grained, some silt.  At 65.4 - 65.5 Dark gray laminations.
		68.5/340	

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			69.4 - 69.8 CLAYEY SILT (ML): Olive, 5 Y 4/4, moist, dense, some sheen above silt, slightly plastic.
			69.8 - 70.0 SILTY SAND (SM): Olive gray, 5 Y 5/2, moist, dense, fine-grained.
70.0 - 75.0	Continuous Core; R=4.8/5.0	71.1/260 72.4/210 73.4/250 73.8/280 74.7/300	70.0 - 70.1 SANDY SILT (SM): Olive, 5 Y 4/4, moist, dense, trace mica, sand is fine-grained, nonplastic.
			70.1 - 71.3 SILTY SAND (SM): Olive, 5 Y 4/3, moist, dense, fine-grained, trace mica.
			71.3 - 71.7 SAND SILT (SM): Olive brown, 2.5 Y 4/4, moist, dense, fine- grained sand.
			71.7 - 73.4 SAND (SP): Olive 5 Y 5/3, dense, moist, fine- with occasional medium- and coarse-grains.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			73.4 - 73.6 SILT (ML): Olive 5 Y 4/4, dense, some clay, non- to slightly plastic.  At 72.9, orange oxide staining.
			73.6 - 73.8 SILTY SAND (SM): SAME AS 70.1 - 71.3, slight sheen at 73.8.
			73.8 - 74.2 CLAYEY SILT (ML): SAME AS 73.4 - 73.6, except slightly plastic.
			74.2 - 74.7 SILTY SAND (SM): Olive, 5 Y 5/4, slight sheen at 74.7.
			74.7 - 75.0 SILT (ML) SAME AS 73.4 - 73.6, with thin laminations fine-grained sand.
75.0 - 80.0	Continuous Core; R=4.9/5.0	75.4/110 76.2/110 77.7/90 79.6/60	75.0 - 75.8 SANDY CLAYEY SILT (CL): Olive, 5 Y 4/3.
			76.0 - 76.3 SILT (ML): SAME AS 73.4 - 73.6.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			76.3 - 77.6 SAND (SP): Olive gray, 5 Y 4/2, fine-grained, silty at 77.4, thin silt, olive at 76.8 - 0.01 foot.  At 77.4, increase percent mica.
			77.6 - 78.2 SILT (ML): SAME AS 73.4 - 73.6.
			78.2 - 79.7 SILTY SAND (SP): Olive gray, 5 Y 4/2, fine-grained, moist.  At 79.7 - 79.9, laminated silt and fine-grained sand.
80.0 - 85.0	Continuous Core; R=4.3/5.0	80.1/60  82.3/64  83.4/70	80.0 - 80.2 SILTY SAND (SM): Olive gray, 5 Y 4/2, moist, dense, fine-grained, trace mica.
			80.2 - 81.5 SILT (ML): Olive, 5 Y 6/4, grades to clayey silt and sandy silt.  At 80.7 - 81.3 SILTY SAND (SM).

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			81.5 - 84.3 FOSSILIFEROUS SILTY SAND (SM): Olive 5 Y 4/4, dense, hard cement occasionally shell fragments are broken, generally less than 1/4-inch, clayey and silty at 0.3 feet intervals, fine- to medium- grained, occasional coarse grains.
85.0 - 90.0	Continuous Core; R=5.0/5.0	85.5/170 87.3/200 88.9/340 89.2/340	85.0 - 86.1 FOSSILIFEROUS SILTY SAND (SM): SAME AS 81.5 - 84.3.
			86.1 - 87.6 SILTY SAND (SM): Olive, 5 Y 5/4, moist, dense, some orange oxide staining, some medium grains at base, sheen at interface.
			87.6 - 88.0 INTERBEDDED SILTY SAND (SM), SANDY SILT (ML): SAME AS 86.1 - 87.6.
			88.0 - 89.0 SILTY SAND (SM): Olive gray, 5 Y 4/2, moist, dense, fine with some medium sand.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			89.0 - 89.1 CLAYEY SILT (ML): Olive, 5 Y 4/4, moist, stiff, orange oxide laminations at interface, slightly plastic.
			89.1 - 89.35 SILTY SAND (SM): SAME AS 88.0 - 89.0, with sheen:
			89.35 - 90.0 SILT (ML): Olive, 5 Y 5/4, moist, stiff, nonplastic.
90.0 - 95.0	Continuous Core; R=5.0/5.0	90.7/18.0 91.6/5.4 92.4/40 93.1/62 94.3/102	90.0 - 90.6 SILT (ML): SAME AS 89.35 - 90.0.
			90.6 - 90.7 SILTY SAND (SM): Olive gray, 5 Y 4/2, moist, dense, fine-grained.
			90.7 - 91.0 SANDY SILT (SM): Olive, 5 Y 4/4, moist, stiff, nonplastic, fine-grained sand.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			91.0 - 91.5 SILT (ML): SAME AS 90.0 - 90.6.
			91.5 - 92.1 SILTY SAND (SM): SAME AS 90.6 - 90.7.
			AT 92.8 THIN SILT (ML): 0.05 foot thick.
95.0 - 100.0	Continuous Core; R=5.0/5.0	95.5/17 96.3/28 98.2/30 99.8/100	93.1 - 95.0 FOSSILIFEROUS SILTY SAND (SM): Olive, 5 Y 4/4, moist, dense, fine- grained.
			95.0 - 98.3 FOSSILIFEROUS SILTY SAND (SM): SAME AS 93.1 - 95.0.
			96.3 - 97.1 SILTY SAND (SM): SAME AS 90.6 - 90.7, with decreasing percent fossils to some.
			97.1 - 100.00 SILTY SAND (SM): Olive, 5 Y 5/4, moist, fine-grained, orange oxide mottling throughout.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
100.0 - 105.0	Continuous Core; R=5.0/5.0	100.9/30 101.9/70 103/24 104.5/30	100.0 - 105.0 SILTY SAND (SM): Olive, 5 Y 5/3, moist, dense, fine-grained, orange mottling throughout.  AT 100.8, thin silt inclusion (discontinuous in core).  AT 102, feet 1/2" shell fragment.  At 103.6, thin silt inclusion (discontinuous in core).  AT 104 - 105, trace shell shadows.
105.0 - 110.0	Continuous Core; R=4.8/5.0		105.0 - 110.0 SILTY SAND (SM): SAME AS 100.0 - 105.0.  AT 105 - 106, shell shadows.  AT 107.5, shell shadows  AT 109, shell shadows.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
110.0 - 115.0	Continuous Core; R=5.0/5.0	111/20 114.5/9.5 112/13	110.0 - 115.0 SILTY SAND (SM): SAME AS 100.0 - 105.0.  AT 114.5, increasing shell fragments, sand becoming fine- to medium-grained, also grain colors are white, milky, clear, orange, red, gray, yellowish, brown, subangular to subround, subprismatic.
115.0 - 120.0	Continuous Core; R=4.8/5.0	116.5/19 117.5/19 119/45	115.0 - 120.0 SAND (SP): Light olive brown, 2.5 Y 5/6, moist, dense, fine- to medium-grained, some silt, varicolored grains.  At 115.0 - 115.5, silty and fine- grained:  At 116.5, decrease in shell fragments.  At 116.8, thin olive silt inclusion.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			At 117 - 117.7, orange oxide staining, laminations of dark gray mafics.
			AT 118 - 120, predominately medium-grained.
120.0 - 125.0	Continuous Core; R=5.0/5.0	121.3/20 123.8/11	120.0 - 125.0 SAND (SP): SAME AS 115.0 - 120.0, moist, dense, fine- to coarse, predominately medium-grained.
			At 121.8, 0.1 feet thick coarse layer.
125.0 - 130.5	Continuous Core; R=5.5/5.5	126/6.5 127/14 128/38 130/25	125.0 - 126.5 SAND (SP): SAME AS 120.0 - 125.0.
			126.5 - 127.5 SANDY CLAYEY SILT (ML): Olive, 5 Y 5/5, moist, stiff, slightly plastic, fine-grained sand.
			AT 127.5, thin gray, 5 Y 5/1, clayey sand layer 0.05 foot thick, fine- to medium-grained.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-1 (continued)  
LOG OF SOIL BORING S101A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			127.5 - 128.5 CLAYEY SILT (ML): GRADING TO SILTY CLAY (ML): Mottled, olive 5 Y 5/5, stiff, moderately plastic.
			128.5 - 130.5 CLAY (CH): Dark gray, 5 Y 5/1, moist, stiff plastic, trace silt.

TOTAL DEPTH BOTTOM OF BOREHOLE: 130.5 Feet.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated.  
OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-2  
LOG OF SOIL BORING S301

Date: October 24, 1988  
Weather: Overcast, 72°F, wind 3-5 mph from west.

Drill Rig: Mobile B-61, 8-inch O.D. hollow stem auger  
Sample Method: Drive Sampler and Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Auger to 14.6			
14.6 - 16.1	27-23-21; R=0.3/1.5	14.5/700	No Recovery to 17.5 feet (See S301B).
16.9 - 18.4	12-13-14; R=1.5/1.5	18.0/1150	17.5 - 18.4 SILT (ML): Olive brown, 2.5 Y 4/4, slightly moist, firm, some clay, trace fine-grained sand, trace mica, slightly plastic.
19.0 - 20.5	4-5-10; R=1.5/1.5	20.0/700	19.7 - 20.5 SILT (ML): SAME AS 17.5 - 18.4.
21.0 - 22.5	3-6-11; R=1.5/1.5	21.5/180	21.0 - 22.5 CLAYEY SILT (ML): Olive brown, 2.5 Y 4/4, slightly moist, stiff, trace mica, slightly plastic, trace calcareous inclusions.  At 21.8 feet, cemented, hard, fine-grained sand nodule 1.5 inches in diameter.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-2 (continued)  
LOG OF SOIL BORING S301

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
22.9 - 24.4	5-12-15; R=1.5/1.5	23.5/1100	22.9 - 24.4 CLAYEY SILT (ML): SAME AS 21.0 - 22.5, with trace dark gray streaks.
24.5 - 29.5	Continuous Core; R=4.2/5.0	27.5/900	24.5 - 27.5 CLAYEY SILT (ML): SAME AS 21.0 - 22.5. At 26.0-27.5, orange mottling.  27.5 - 28.7 SAND (SP): Light olive brown, 2.5 Y 5/4, slightly moist, dense, fine-grained, trace silt, odoriferous.
29.5 - 33.5	Continuous Core; R=2.5/4.0	30.0/500  31.0/3	29.5 - 32.0 SILTY SAND (SM): Mottled light olive brown, 2.5 Y 5/6, to light yellowish brown, 2.5 Y 6/4, with occasional light gray, slightly moist, dense, fine-grained.
33.5 - 37.7	Continuous Core; R=0.8/0.8	34.5/180	33.5 - 35.7 SILTY SAND (SM): Light olive brown, 2.5 Y 5/6, mottled with light brownish gray, 2.5 Y 6/2, slightly moist, dense, fine-grained.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-2 (continued)  
LOG OF SOIL BORING S301

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
37.7 - 38.5	Continuous Core; R=1.4/2.3	38/80	37.7 - 38.2 SILTY SAND (SM): SAME AS 33.5 - 35.7. 38.2 - 38.5 SAND (SP): Light yellowish brown, 2.5 Y 6/4, slightly moist, dense, fine-grained.
38.5 - 40.6	Continuous Core; R=1.4/2.3	38.7/80	38.5 - 38.7 SAND (SP): Mottled yellowish brown 10 YR 6/3, 6/4, 5/3, 5/4, slightly moist, dense, fine-grained.
40.6 - 40.9	Continuous Core; R=0.3/0.3	40.9/70	38.7 - 39.9 FOSSILIFEROUS SAND (SP): Very pale brown, 10 YR 7/4, slightly moist, dense, fine-grained, shell fragments 0.5 inches in length. 40.6 - 40.9 FOSSILIFEROUS SAND (SP): Varicolored 10 YR 7/3, 7/4, 6/3, 6/4, 6/5, very dense, cemented, trace medium- and coarse-grains.
Hard drilling 40.9 - 42.6.			
42.6 - 43.5	Continuous Core; R=0.9/0.9	43.3/560	42.6 - 43.5 SILTY SAND (SM): Light olive brown, 2.5 Y 5/4, slightly moist, dense, fine-grained, trace shell fragments, odoriferous.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-2 (continued)  
LOG OF SOIL BORING S301

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
43.5 - 48.5	Continuous Core; R=1.0/1.5	44.0/115	43.5 - 44.5 SILTY SAND (SM): SAME AS 42.6 - 43.5, with trace mica, some darker lamination and orange mottling.
48.5 - 51.0	Continuous Core; R=2.5/2.5	49.8/39	48.5 - 49.0 SAND (SP): SAME AS 42.6 - 43.5, with less silt.
			49.0 - 49.4 SILTY SAND (SM): SAME AS 42.6 - 43.5, with mottled orange and gray.
			49.4 - 49.8 CLAYEY SILT (ML): Light olive brown, 2.5 Y 5/4, moist, stiff.
			50.3 - 51.0 INTERBEDDED SANDY SILT (ML) AND SILTY SAND (SM), 0.05-foot thick: SAME AS 42.6 - 43.5

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-2 (continued)  
LOG OF SOIL BORING S301

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
51.0 - 53.5	Continuous Core; R=2.5/2.5	52.0/190	51.0 - 51.2 SAME AS 50.3 - 51.0.
			51.2 - 51.9 SILTY CLAY (ML): light olive brown, 2.5 Y 5/4, slightly moist, stiff, plastic.
			51.5 - 53.1 INTERBEDDED SILTY SAND (SM), CLAYEY SILT (ML), AND SANDY SILT (ML) 0.05 to 0.3 foot thick. SILTY SAND AND SANDY SILT (SM): SAME AS 42.6 - 43.5. CLAYEY SILT (ML): SAME AS 51.2 - 51.9, but moderately plastic.
			53.1 - 53.5 SILTY SAND (SM): Light olive brown, 2.5 Y 5/6, trace mottled gray, slightly moist, dense, fine-grained, trace mica.
53.5 - 58.5	Continuous Core; R=1.3/5.0	58.5/19	53.5 - 54.2 SILTY SAND (SM): Mottled, gray, orange, predominantly light olive brown, 2.5 Y 5/4, slightly moist, dense, fine-grained, trace mica.
			At 54.0 and 54.5, SILT (ML): Light olive brown, 2.5 Y 5/4, slightly moist, stiff, trace fine-grained sand, trace mica, 0.05-foot thick.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-2 (continued)  
LOG OF SOIL BORING S301

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			54.2 - 54.8 SAND (SP): Olive yellow, 2.5 Y 6/6, slightly moist, dense, trace mica, trace medium grains, some silt.
58.5 - 61.6	Continuous Core; R=2.1/2.6		58.5 - 59.4 SAND (SP): Light yellowish brown, 2.5 Y 6/4, dry to slightly moist, dense, fine-grained, some silt.
			60.9 - 61.1 SAND (SP): SAME AS 58.5 - 59.4, with coarsening, medium-grained, trace orange mottling.

TOTAL DEPTH OF BOREHOLE: 61.6 Feet

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3

## LOG OF SOIL BORING S301A

Date: October 14, 1988

Weather: Partly cloudy, warm, light wind from west.

Drill Rig: Ingersoll-Rand TH100 mud rotary drill rig, 5 1/2-inch O.D. core barrel

Sample Method: Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Tri-cone mud rotary drill to 57.5 feet.			
57.5 - 60.0	Continuous Core; R=2.3/2.5	58.2/4.4	57.5 - 57.8 CLAYEY SILT (ML): Light olive brown, 2.5 Y 5/4, moist, stiff, slightly plastic.
			57.8 - 58.8 SAND (SP): Olive, 5 Y 4/4, to light olive brown, 2.5 Y 5/4, moist, dense, fine-grained, trace mica.
		59.6/4.1	58.8 - 59.1 SANDY SILT (ML): Olive, 5 Y 4/4, to olive brown, 2.5 Y 5/4, moist, dense, nonplastic, fine-grained sand.
			59.1 - 59.8 SAND (SP): SAME AS 57.8 - 58.8.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

HARGIS ASSOCIATES

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
60.0 - 65.0	Continuous Core; R=4.8/5.0		60.0 - 60.9 SAND (SP): Olive, 5 Y 4/4, to olive brown, 2.5 Y 4/4, mottled with orange oxide-staining, moist, dense, fine-grained, trace mica.
		61.4/3.6	60.9 - 62.1 FOSSILIFEROUS SAND (SP): Olive brown, 2.5 Y 7/4, to light brownish gray, 2.5 Y 7/4, moist, dense, fine-grained, some medium-grained, trace mica, fossils are oyster shell fragments up to 1 1/4 -inch in length.
		63.9/4.4	62.1 - 62.5 SAND (SP): SAME AS 60.0 - 60.9.
			62.5 - 62.6 SILT (ML): Olive brown, 2.5 Y 4/4, moist, stiff, nonplastic.
			62.6 - 63.2 SAND (SP): SAME AS 60.0 - 60.9.
			63.2 - 64.8 SAND (SP): Grayish brown, 2.5 Y 5/2, moist, dense, fine-grained, trace mica, stratified with dark gray lamination.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
65.0 - 70.0	Continuous Core; R=4.9/5.0	65.9/1.4 69.3/7.6	65.0 - 69.9 SAND (SP): SAME AS 63.2 - 64.8.  AT 65.0 - 65.6, orange oxide mottling.  AT 66.4 - 67, interbedded silty sand.
70.0 - 75.0	Continuous Core; R=5.0/5.0	72.6/11.6 73.9/56	70.0 - 70.8 SAND (SP): SAME AS 65.0 - 69.9.  AT 70.3 - 70.8, some coarse-grain sand.  AT 70.8, SILT (ML): SAME AS 72.7 - 72.8, 1/4-inch thick.  70.8 - 72.7 SAND (SP): Grayish brown, 2.5 Y 5/2, moist, dense, fine-grained, trace mica.  AT 71.7 - 72.7, orange oxide mottling.  72.7 - 72.8 SILT (ML): Olive brown, 2.5 Y 4/4 - 5/4, moist, stiff, nonplastic, some orange oxide mottling.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			72.8 - 74.8 SAND (SP): Grayish brown, 2.5 Y 5/2 - 2.5 Y 4/2, moist, dense, fine-grained.
			AT 74 SILT (ML): SAME AS 72.7 - 72.8, 1/4-inch thick, with orange oxide stained bedding plane at base of overlying sand.
			74.8 - 74.85 SILT (ML): Olive brown, 2.5 Y 5/4 - 4/4, moist, stiff, nonplastic, subfissile.
			AT 74, 1/4 -inch thick interbed of silt: SAME AS 72.7 - 72.8, with orange oxide stained bedding plane at base of overlying sand.
			74.8 - 74.85 SILT (ML): Olive brown, 2.5 Y 5/4 - 4/4, moist, stiff, nonplastic, subfissile.
			74.85 - 75.0 SAND (SP): SAME AS 72.8 - 74.8.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
75.0 - 80.0	Continuous Core; R=5.0/5.0	75.1/750	75.0 - 75.2 SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained.
			75.2 - 75.4 SILT (ML): Olive brown, 2.5 Y 4/4, to dark grayish brown, 2.5 Y 4/2, moist, stiff, nonplastic.
		79.6/700	75.4 - 75.8 SAND (SP): SAME AS 75.0 - 75.2 with some dark gray stratification.
			75.8 - 76.3 SILT (ML): SAME AS 75.2 - 75.4.
			76.3 - 76.9 SAND (SP): SAME AS 75.0 - 75.2.
			AT 76.6 AND 76.8, SILT, 1/2 -inch thick: SAME AS 75.2 - 75.4.
			76.9 - 77.1 SILTY SAND (SM): Dark grayish brown, 2.5 Y 4/2, wet, dense, fine-grained.
			77.1 - 77.8 SILT (ML): SAME AS 75.2 - 75.4.
			77.9 - 79.6 SAND (SP): Generally grayish brown, 2.5 Y 4/2, wet, dense, fine-grained, grain sizes fining with depth.
			AT 78.5, Orange oxide-staining.
			79.6 - 80.0 SILT (ML): SAME AS 75.2 - 75.4.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
80.0 - 85.0	Continuous core; R=4.9/5.0	80.7/680	80.0 - 80.3 SILT (ML): Olive brown, 2.5 Y 4/4, moist, stiff, nonplastic.
		81.4/63.6	80.3 - 81.6 SAND (SP): Olive gray 5 Y 4/2, wet, dense, fine-grained, trace mica.
		84.3/27.6	81.6 - 81.8 SAND (SP): SAME AS 80.0 - 90.3, with some silt.
			81.8 - 81.9 SILT (ML): SAME AS 80.0 - 80.3.
			81.9 - 82.2 SAND (SP): SAME AS 81.6 - 81.8
			82.2 - 83.8 SILT (ML): SAME AS 80.0 - 80.3, with some orange and gray mottling.
			83.8 - 85.0 FOSSILIFEROUS SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained, trace medium-grained, shell fragments.

NOTE: SHEEN NOTED IN SANDS AT INTERFACE OF SILT  
UNITS AT 82.2 AND 81.8 FEET.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

HARGIS & ASSOCIATES, INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
85.0 - 90.0	Continuous Core; R=5.0/5.0	86.2/300; 89.5/300	85.0 - 88.1 FOSSILIFEROUS SAND (SP): SAME AS 83.8 - 85.0.
			AT 86.8 - 88.1: Decreasing percent shell fragments, increasing percent medium-grained sand.
			88.1 - 89.7 SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained, trace mica. AT 89.5 - 89.7, noted sheen.
90.0 - 95.0	Continuous Core; R=5.0/5.0	91.0/14.6; 94.4/8.1	89.7 - 90.0 SILT (ML): Olive gray, 5 Y 4/2, moist, stiff, nonplastic.
			90.0 - 90.1 SILT (ML): Olive brown, 2.5 Y 4/4, moist, stiff, nonplastic.
			90.1 - 90.3 SAND (SP): Dark grayish brown, 2.5 Y 4/2, wet, dense, fine grained, some silt, trace mica.
			90.3 - 90.4 SILT (ML): SAME AS 90.0 - 90.1.
			90.4 - 91.2 SAND (SP): Dark grayish brown, 2.5 Y 4/2, wet, dense, fine-grained, trace mica.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			91.2 - 91.4 SANDY SILT (SM): Olive gray 5 Y 5/2, moist, stiff, fine-grained sand nonplastic.
			91.4 - 91.6 SILT (ML): Olive gray 5 Y 5/2, moist, stiff, nonplastic.
			91.6 - 91.8 SILTY SAND (SM): Olive gray 5 Y 4/2, moist, dense, fine-grained, trace mica.
			91.8 - 92.4 SAND (SP): Olive gray 5 Y 4/2, wet, dense, fine-grained, trace mica.  At 92.3 FEET, Orange oxide mottling.
			92.4 - 92.6 SILT (ML): Olive 5 Y 5/4, moist, stiff, slightly plastic.
			92.6 - 92.8 SILTY SAND (SM): SAME AS 91.6 - 91.8.
			92.8 - 93.0 FOSSILIFEROUS SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, shell fragments are white, broken, angular.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.





TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			93.0 - 93.9 SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, some orange oxide mottling.
			93.9 - 94.1 SILT (ML): SAME AS 92.4 - 92.6.
			94.1 - 94.6 SAND (SP): SAME AS 93.0 - 93.9.
			94.6 - 95.0 FOSSILIFEROUS SAND (SP): SAME AS 92.8 - 93.0.
95.0 - 100.0	Continuous Core; R=5.0/5.0	97.2/2.0	95.0 - 98.4 FOSSILIFEROUS SAND (SP): SAME AS 92.8 - 93.0, trace gastropod shells.
		99.4/9.1	98.4 - 98.7 FOSSILIFEROUS SILTY SAND (SM): Olive gray, 5 Y 5/2, moist, dense, fine-grained, percent shell fragments decreasing.
			98.7 - 99.3 SILTY SAND (SM): Olive, 5 Y 5/3, moist, dense, fine-grained.
			99.3 - 100.0 SILTY SAND (SM): Light yellowish brown, 2.5 Y 6/4, moist to wet, dense, fine-grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
100.0 - 105.0	Continuous Core; R=5.0/5.0	101.5/16.6	100.0 - 105.0 SILTY SAND (SM): Light yellowish brown, 2.5 Y 6/4, to light brownish gray, 2.5 Y 6/2, moist to wet, dense, fine-grained, trace shell fragments and orange oxide mottling.
		103.5/0.6	
105.0 - 110.0	Continuous Core; R=5.0/5.0	105.5/0.6	105.0 - 106.5 SILTY SAND (SM): SAME AS 100.0 - 105.0, with decreasing percent silt with depth, and increasing grain size with depth.
		108.5/1.1	106.5 - 110.0 SAND (SP): Light yellowish brown, 2.5 Y 6/4, moist, dense, fine-grained, trace silt, trace shell fragments, trace orange oxide mottling.
110.0 - 115.0	Continuous Core; R=5.0/5.0	111.5/1.1	110.0 - 115.0 SAND (SP): Light yellowish brown, 2.5 Y 6/4, to light olive, 5 Y 6/3, to olive 5 Y 5/3, moist, dense, fine-grained, trace silt, shell fragments, trace orange oxide mottling.
		113.5/2.1	AT 114.3 - 114.5, fine- to medium-grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			AT 114.8 - 115.0, fine- to medium-grained.
115.0 - 120.0	Continuous Core; R=4.5/5.0	116.5/0.6	115.0 - 116.0 SAND (SP): SAME AS 110.0 - 115.0.
		118.5/1.8	116.0 - 119.4 SAND (SP): SAME AS 110.0 - 115.0, except fine- to medium-grained.
			AT 117.75, cemented nodule.
			AT 118.5, cemented nodule.
			AT 119.0, cemented nodule.
			119.4 - 119.5 SAND (SP): Light olive brown, 2.5 Y 5/4, moist, dense, predominately medium-grained, subrounded to rounded, subprismatic. Individual grains are predominately clear to white (milky), trace orange, black, brown grains.
120.0 - 125.0	Continuous Core; R=4.8/5.0	121.5/2.6	120.0 - 120.2 SAND (SP): SAME AS 119.4 - 119.5.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		123/2.6	120.2 - 124.8 SAND (SP): Olive 5 Y 5/3, moist to wet, dense, fine- to medium-grained, subrounded to rounded, subprismatic. Individual grains are predominately clear to white (milky), with traces of black, orange, red, brown, pink, green and yellow.
		124/1.6	AT 120.5 - 120.6 FEET, medium-grains with trace coarse grains.  AT 120.8 FEET, lense of medium-grains.  AT 121.2 FEET, interbedded dark gray to black, fine-grained sand 0.1-foot thick.  AT 122.2 and 123.8, SAME AS AT 121.2.  AT 122 FEET, medium-grained lense.  AT 123.5 - 123.7, medium-grained with trace coarse-grains.  AT 124.5 - 124.7, predominately fine-grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
125.0 - 130.0	Continuous Core; R=5.0/5.0	126.5/2.6	125.0 - 126.5 SAND (SP): SAME AS 120.2 - 124.8.
		128/1.4	126.5 - 127.8 SAND (SP): SAME AS 120.2 - 124.8, except olive gray 5 Y 5/2, trace silt.
			127.8 - 127.9 SILTY SAND (SM): Gray 5 Y 5/1, moist, dense, fine- to medium- grained, multicolored grains, subprismatic, subrounded.
			127.9 - 129.0 SILT (ML): Olive 5 Y 5/3, moist, stiff, nonplastic, some gray and orange mottling.
			AT 129.0 FEET, sand lense, 1/4 - inch thick, fine- to medium-grained.
			129.0 - 130.0 CLAYEY SILT (ML): Gray 5 Y 5/1, moist, stiff, slightly plastic.

TOTAL DEPTH OF BOREHOLE: 130 Feet.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			72.8 - 74.8 SAND (SP): Grayish brown, 2.5 Y 5/2 - 2.5 Y 4/2, moist, dense, fine-grained.
			AT 74 SILT (ML): SAME AS 72.7 - 72.8, 1/4-inch thick, with orange oxide stained bedding plane at base of overlying sand.
			74.8 - 74.85 SILT (ML): Olive brown, 2.5 Y 5/4 - 4/4, moist, stiff, nonplastic, subfissile.
			AT 74, 1/4 - inch thick interbed of silt: SAME AS 72.7 - 72.8, with orange oxide stained bedding plane at base of overlying sand.
			74.8 - 74.85 SILT (ML): Olive brown, 2.5 Y 5/4 - 4/4, moist, stiff, nonplastic, subfissile.
			74.85 - 75.0 SAND (SP): SAME AS 72.8 - 74.8.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
75.0 - 80.0	Continuous Core; R=5.0/5.0	75.1/750	75.0 - 75.2 SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained.
			75.2 - 75.4 SILT (ML): Olive brown, 2.5 Y 4/4, to dark grayish brown, 2.5 Y 4/2, moist, stiff, nonplastic.
			75.4 - 75.8 SAND (SP): SAME AS 75.0 - 75.2 with some dark gray stratification.
			75.8 - 76.3 SILT (ML): SAME AS 75.2 - 75.4.
		79.6/700	76.3 - 76.9 SAND (SP): SAME AS 75.0 - 75.2.
			AT 76.6 AND 76.8, SILT, 1/2 - inch thick: SAME AS 75.2 - 75.4.
			76.9 - 77.1 SILTY SAND (SM): Dark grayish brown, 2.5 Y 4/2, wet, dense, fine-grained.
			77.1 - 77.8 SILT (ML): SAME AS 75.2 - 75.4.
			77.9 - 79.6 SAND (SP): Generally grayish brown, 2.5 Y 4/2, wet, dense, fine-grained, grain sizes fining with depth.
			AT 78.5, Orange oxide-staining.
			79.6 - 80.0 SILT (ML): SAME AS 75.2 - 75.4.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
80.0 - 85.0	Continuous core; R=4.9/5.0	80.7/680	80.0 - 80.3 SILT (ML): Olive brown, 2.5 Y 4/4, moist, stiff, nonplastic.
		81.4/63.6	80.3 - 81.6 SAND (SP): Olive gray 5 Y 4/2, wet, dense, fine-grained, trace mica.
		84.3/27.6	81.6 - 81.8 SAND (SP): SAME AS 80.0 - 90.3, with some silt.
			81.8 - 81.9 SILT (ML): SAME AS 80.0 - 80.3.
			81.9 - 82.2 SAND (SP): SAME AS 81.6 - 81.8
			82.2 - 83.8 SILT (ML): SAME AS 80.0 - 80.3, with some orange and gray mottling.
			83.8 - 85.0 FOSSILIFEROUS SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained, trace medium-grained, shell fragments.

NOTE: SHEEN NOTED IN SANDS AT INTERFACE OF SILT  
UNITS AT 82.2 AND 81.8 FEET.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES INC.



TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
85.0 - 90.0	Continuous Core; R=5.0/5.0	86.2/300; 89.5/300	85.0 - 88.1 FOSSILIFEROUS SAND (SP): SAME AS 83.8 - 85.0.
			AT 86.8 - 88.1: Decreasing percent shell fragments, increasing percent medium-grained sand.
			88.1 - 89.7 SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained, trace mica. AT 89.5 - 89.7, noted sheen.
90.0 - 95.0	Continuous Core; R=5.0/5.0	91.0/14.6; 94.4/8.1	89.7 - 90.0 SILT (ML): Olive gray, 5 Y 4/2, moist, stiff, nonplastic.
			90.0 - 90.1 SILT (ML): Olive brown, 2.5 Y 4/4, moist, stiff, nonplastic.
			90.1 - 90.3 SAND (SP): Dark grayish brown, 2.5 Y 4/2, wet, dense, fine grained, some silt, trace mica.
			90.3 - 90.4 SILT (ML): SAME AS 90.0 - 90.1.
			90.4 - 91.2 SAND (SP): Dark grayish brown, 2.5 Y 4/2, wet, dense, fine-grained, trace mica.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			91.2 - 91.4 SANDY SILT (SM): Olive gray 5 Y 5/2, moist, stiff, fine-grained sand nonplastic.
			91.4 - 91.6 SILT (ML): Olive gray 5 Y 5/2, moist, stiff, nonplastic.
			91.6 - 91.8 SILTY SAND (SM): Olive gray 5 Y 4/2, moist, dense, fine-grained, trace mica.
			91.8 - 92.4 SAND (SP): Olive gray 5 Y 4/2, wet, dense, fine-grained, trace mica.  At 92.3 FEET, Orange oxide mottling.
			92.4 - 92.6 SILT (ML): Olive 5 Y 5/4, moist, stiff, slightly plastic.
			92.6 - 92.8 SILTY SAND (SM): SAME AS 91.6 - 91.8.
			92.8 - 93.0 FOSSILIFEROUS SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, shell fragments are white, broken, angular.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
95.0 - 100.0	Continuous Core; R=5.0/5.0	97.2/2.0	93.0 - 93.9 SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, some orange oxide mottling.
			93.9 - 94.1 SILT (ML): SAME AS 92.4 - 92.6.
			94.1 - 94.6 SAND (SP): SAME AS 93.0 - 93.9.
		99.4/9.1	94.6 - 95.0 FOSSILIFEROUS SAND (SP): SAME AS 92.8 - 93.0.
			95.0 - 98.4 FOSSILIFEROUS SAND (SP): SAME AS 92.8 - 93.0, trace gastropod shells.
			98.4 - 98.7 FOSSILIFEROUS SILTY SAND (SM): Olive gray, 5 Y 5/2, moist, dense, fine-grained, percent shell fragments decreasing.
			98.7 - 99.3 SILTY SAND (SM): Olive, 5 Y 5/3, moist, dense, fine-grained.
			99.3 - 100.0 SILTY SAND (SM): Light yellowish brown, 2.5 Y 6/4, moist to wet, dense, fine-grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
100.0 - 105.0	Continuous Core; R=5.0/5.0	101.5/16.6	100.0 - 105.0 SILTY SAND (SM): Light yellowish brown, 2.5 Y 6/4, to light brownish gray, 2.5 Y 6/2, moist to wet, dense, fine-grained, trace shell fragments and orange oxide mottling.
		103.5/0.6	
105.0 - 110.0	Continuous Core; R=5.0/5.0	105.5/0.6	105.0 - 106.5 SILTY SAND (SM): SAME AS 100.0 - 105.0, with decreasing percent silt with depth, and increasing grain size with depth.
		108.5/1.1	106.5 - 110.0 SAND (SP): Light yellowish brown, 2.5 Y 6/4, moist, dense, fine-grained, trace silt, trace shell fragments, trace orange oxide mottling.
110.0 - 115.0	Continuous Core; R=5.0/5.0	111.5/1.1	110.0 - 115.0 SAND (SP): Light yellowish brown, 2.5 Y 6/4, to light olive, 5 Y 6/3, to olive 5 Y 5/3, moist, dense, fine-grained, trace silt, shell fragments, trace orange oxide mottling.
		113.5/2.1	AT 114.3 - 114.5, fine- to medium-grained.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			AT 114.8 - 115.0, fine- to medium-grained.
115.0 - 120.0	Continuous Core; R=4.5/5.0	116.5/0.6	115.0 - 116.0 SAND (SP): SAME AS 110.0 - 115.0.
		118.5/1.8	116.0 - 119.4 SAND (SP): SAME AS 110.0 - 115.0, except fine- to medium-grained.
			AT 117.75, cemented nodule.
			AT 118.5, cemented nodule.
			AT 119.0, cemented nodule.
			119.4 - 119.5 SAND (SP): Light olive brown, 2.5 Y 5/4, moist, dense, predominately medium-grained, subrounded to rounded, subprismatic. Individual grains are predominately clear to white (milky), trace orange, black, brown grains.
120.0 - 125.0	Continuous Core; R=4.8/5.0	121.5/2.6	120.0 - 120.2 SAND (SP): SAME AS 119.4 - 119.5.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		123/2.6	120.2 - 124.8 SAND (SP): Olive 5 Y 5/3, moist to wet, dense, fine- to medium-grained, subrounded to rounded, subprismatic. Individual grains are predominately clear to white (milky), with traces of black, orange, red, brown, pink, green and yellow.
		124/1.6	AT 120.5 - 120.6 FEET, medium-grains with trace coarse grains.  AT 120.8 FEET, lense of medium-grains.  AT 121.2 FEET, interbedded dark gray to black, fine-grained sand 0.1-foot thick.  AT 122.2 and 123.8, SAME AS AT 121.2.  AT 122 FEET, medium-grained lense.  AT 123.5 - 123.7, medium-grained with trace coarse-grains.  AT 124.5 - 124.7, predominately fine-grained.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS + ASSOCIATES, INC.

TABLE K-3 (continued)  
LOG OF SOIL BORING S301A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
125.0 - 130.0	Continuous Core; R=5.0/5.0	126.5/2.6	125.0 - 126.5 SAND (SP): SAME AS 120.2 - 124.8.
		128/1.4	126.5 - 127.8 SAND (SP): SAME AS 120.2 - 124.8, except olive gray 5 Y 5/2, trace silt.
			127.8 - 127.9 SILTY SAND (SM): Gray 5 Y 5/1, moist, dense, fine- to medium- grained, multicolored grains, subprismatic, subrounded.
			127.9 - 129.0 SILT (ML): Olive 5 Y 5/3, moist, stiff, nonplastic, some gray and orange mottling.
			AT 129.0 FEET, sand lense, 1/4 -inch thick, fine- to medium-grained.
			129.0 - 130.0 CLAYEY SILT (ML): Gray 5 Y 5/1, moist, stiff, slightly plastic.

TOTAL DEPTH OF BOREHOLE: 130 Feet.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-4

## LOG OF SOIL BORING S301B

Date: October 28, 1988

Weather: Overcast, 66°F, wind from east at 0-5 mph.

Drill Rig: Mobil B-61, 8-inch O.D. hollow stem auger

Sample Method: Hand Drive Sampler

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Auger to 4.6			
4.6 - 7.9	R=0.2/3.1		4.8 - 7.9 <sup>3</sup> CLAY (CH): Very dark gray, 10 YR 3/1, slightly moist, stiff, plastic.
8.6 - 9.3	R=0.7/0.7		8.6 - 9.0 CLAY (CH): Very dark gray, 10 YR 3/1, slightly moist, stiff, plastic.
8.6 - 13.0	R=3.3/4.4		9.0 - 11.9 SILT (ML): Light olive brown, 2.5 Y 5/4, slightly moist, stiff, slightly plastic.
13.0 - 18.0	R=5.0/5.0		13.0 - 18.0 SILT (ML): SAME AS 9.0 - 11.9.

TOTAL DEPTH OF BOREHOLE: 18.0 FEET

- 1 Blowcounts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithologic description based on auger cuttings.



HARGIS &amp; ASSOCIATES, INC.



TABLE K-5

## LOG OF SOIL BORING S302A

Date: October 17, 1988

Weather: Clear, 75°F, winds from west to southwest at 5 mph.

Drill Rig: Ingersoll-Rand TH100, 5 1/2 -inch O.D. core barrel

Sample Method: Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Tricone mud rotary to 64.6 feet.			
64.6 - 70.0	Continuous Core; R=4.6/5.4	66.5/350	64.6 - 69.2 SAND (SP): Olive, 5 Y 5/4, moist, dense, fine-grained, trace mica, occasional iron oxide stain.
		67.8/150	64.8 - 64.9 SILT (ML): Olive, 5 Y 4/4, moist, dense, nonplastic.
		68.6/250	66.5 - 66.6 SILT (ML): Light olive brown 2.5 Y 5/6, moist, dense, nonplastic.
			At 67.7, SILT (ML), 0.05 -feet thick: SAME AS 64.8 - 64.9, with iron oxide crust.
			At 67.8, SILT (ML), 0.05 -feet thick: SAME AS 64.8 - 64.9.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
70.0 - 75.0	Continuous Core; R=4.6/5.0	72.1/165	70.0 - 70.1 SILT (ML): Olive, 5 Y 4/4, moist, dense, nonplastic.
		73.5/350	70.1 - 71.8 SAND (SP): Olive, 5 Y 4/4, moist, dense, fine-grained, trace mica, occasional orange iron oxide stain.
			71.8 - 71.9 SILT (ML): SAME AS 70.0 - 70.1.
			71.9 - 72.2 SAND (SP): SAME AS 70.1 - 71.8.
			72.2 - 72.4 SILT (ML): Olive, 5 Y 5/6, moist, stiff, nonplastic, iron oxide crust on top of silt at 72.2.
			72.4 - 74.6 SAND (SP): SAME AS 70.1 - 71.8, but fine- to medium-grained and wet, saturated, oily sheen.
			At 74.1, SILT (ML): SAME AS 72.2 - 72.4, discontinuous in core.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
75.0 - 80.0	Continuous Core; R=5.4/5.0	76.0/900	75.0 - 75.1 SANDY SILT (SM): Olive brown, 2.5 Y 4/4, wet, dense, fine-grained sand, nonplastic.
		79.6/75	75.1 - 76.3 SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, trace mica, hairline orange iron oxide laminations, black hairline laminations.  AT 76.0 - 76.3, oily sheen.
			76.3 - 76.45 SILT (ML): Olive, 5 Y 5/6, moist, stiff, nonplastic.
			76.45 - 76.6 SANDY SILT (ML): Olive, 5 Y 4/3, moist, dense, fine-grained, trace mica, iron oxide stain.
			76.6 - 76.8 SAND (SP): SAME AS 75.1 - 76.3, but no observable oily sheens, and no observable black laminations or orange oxide stain present.
			76.8 - 79.5 SILT (SP): SAME AS 76.3 - 76.45, with hairline orange laminations.
			79.5 - 79.65 SAND (SP): SAME AS 75.1 - 76.3, and with oily sheens.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			79.65 - 79.8 SILT (ML): SAME AS 76.3 - 76.45.
			79.8 - 80.0 SAND (SP): SAME AS 75.1 - 76.3.
80.0 - 85.0	Continuous Core; R=4.9/5.0	80.4/250	80.0 - 81.9 SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, trace mica, iron oxide stain.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		81.6/350	At 80.4 and 81.7, oily sheen.  At 80.4 and 81.7, oily sheen observed.
			82.0 - 83.9 SILT (ML): Olive, 5 Y 5/6, moist, stiff, nonplastic, with sandy laminations.  At 82.6 - 82.7 SAND (SP): SAME AS 80.0 - 81.9.  At 82.9 SAND (SP) 0.05 -feet thick: SAME AS 80.0 - 81.9.  At 83.0 - 83.05 SAND (SP): SAME AS 80.0 - 81.9.  At 83.1 - 83.2 SAND (SP): SAME AS 80.0 - 81.9.
		84.4/280	83.9 - 84.5 SILT (ML): Olive, 5 Y 4/3, moist, dense, trace sand, nonplastic.  84.5 - 84.9 SILT (ML): SAME AS 82.0 - 83.9.  At 84.9, shell fragments.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
85.0 - 90.0	Continuous Core; R=4.8/5.0	85.5/54	85.0 - 85.3 SILTY SAND (SM): Olive, 5 Y 5/4, moist, dense, fine-grained, trace mica, iron oxide-staining common.
		89.3/44	At 85.2 - 85.3, shell fragments, up to 1/2 -inch in length.
			85.3 - 85.8 FOSSILIFEROUS SAND (SP): Gray, 2.5 Y 5, wet, dense, moderate cementation, fine- to medium- grained, some silt, oyster shell fragments up to 1/2 -inch in length.
			85.8 - 86.9 FOSSILIFEROUS SILTY SAND (SM): Olive, 5 Y 5/4, wet, dense, fine- to medium-grained, occasional cemented nodules, oyster shell fragments up to 1 -inch in length, orange iron oxide stains.
			At 86.2, SILT (ML), 0.05 -inch thick: SAME AS 86.9 - 87.2.
			86.9 - 87.2 SILT (ML): Olive, 5 Y 5/6, moist, stiff, slightly plastic, some orange oxide laminations, fossiliferous sand interbed 0.05 -feet thick.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			87.2 - 87.3 FOSSILIFEROUS SILTY SAND (SM): SAME AS 85.8 - 86.9.
			87.3 - 87.35 SANDY SILT (SM): Olive, 5 Y 5/4, moist, firm, fine-grained sand, nonplastic, dipping about 20°.
			87.35 - 87.6 SAND (SP): Pale olive, 5 Y 6/3, moist, dense, fine- to medium- grained, subdiscoidal to subprismoidal, subangular to rounded, trace iron oxide staining, shell fragments up to 1/8 -inch in length.
			87.6 - 89.3 SAND (SP): Olive, 5 Y 5/4, wet, dense, fine-grained, trace mica, iron oxide stains, with 2 silt interbeds about 0.1 -foot thick.
			89.3 - 89.8 THINLY LAMINATED SILT (ML) AND SANDY SILT (SM): Olive, 5 Y 4/3, moist, stiff, fine-grained sand, nonplastic, orange oxide laminations.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
90.0 - 95.0	Continuous Core; R=5.0/5.0	90.7/175	90.0 - 91.1 SILTY SAND (SM): Olive gray, 5 Y 5/2, moist, dense, fine-grained, trace mica, orange oxide laminations.
		93.6/115	91.1 - 92.0 INTERBEDDED SILT (ML) AND SILTY SAND (SM) 0.01 TO 0.1 FEET THICK SILT: Light olive brown, 2.5 Y 5/4, moist, stiff, trace fine-grained sand, nonplastic, orange oxide laminations, SILTY SAND: same as 90.0 - 91.1.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		94.4/21	92.0 - 92.2 SILT (ML): SAME AS SILT IN 91.1 - 92.0.
			92.2 - 93.7 SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained, trace mica, trace shell fragments.  At 92.9 - 93.7, iron oxide laminations and banding dipping 45°.
			93.7 - 94.1 SILT (ML): SAME AS SILT IN 91.1 - 92.0, with a sand filled "worm" tube and orange iron oxide vertical-stains at 93.7 - 93.8.
			94.1 - 94.4 SILTY SAND (SM): Olive, 5 Y 5/3, wet, dense, fine-grained, trace mica.
			94.1 - 95.0 SILT (ML) AND SILTY SAND (SM) INTERBEDS: SAME AS 91.1 - 92.0.
95.0 - 100.0	Continuous Core; R=5.0/5.0	95.9/81	95.0 - 97.0 INTERBEDDED SILTY SAND (SP) AND SILT (ML), 0.05 - 0.15 FEET THICK: SAME AS 91.1 - 92.0.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		97.2/70	At 96.0, sand filled "worm" tube, 2-inches long and 1/2 -inch thick.  At 95.8 - 95.9, coarsening and with some medium-grains.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		99.6/24	97.0 - 97.3 SAND (SP): Olive, 5 Y 5/3, wet, dense, fine- to medium-grained, subprismatic and subrounded, shell fragments up to 0.05 -feet in length.
			97.3 - 98.7 INTERBEDDED SILT (ML) AND SILTY SAND (SM): SAME AS 91.1 - 92.0.  AT 98.0, trace sheen, dissipating rapidly.
			97.8 - 98.0 SILTY SAND (SM): Olive gray, 5 Y 4/2, wet, dense.
			98.7 - 99.8 SAND (SP): Olive gray, 5 Y 4/2, moist, dense, fine-grained, trace mica.  At 99.0, silt interbed 0.05 Feet: SAME AS SILT IN 91.1 - 92.0.  At 99.7, trace sheen, dissipating rapidly.
			99.8 - 99.9 CLAYEY SAND (SC): Gray, 5 Y 5/1, wet, dense, fine-grained, trace mica, shell fragments.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS + ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			99.9 - 100.0 SILT (ML): Olive gray, 5 Y 5/2, moist, stiff, nonplastic.
100.0 - 105.0	Continuous Core; R=4.8/5.0	100.9/9	100.0 - 104.8 SILTY SAND (SM): Olive blue gray (not in Munsell color chart), moist, dense, fine-grained, no orange stains.
		104.6/10.5	At 100.0 - 101.0, numerous: whole shells and shell fragments up to 1 -inch long, gastropods and bivalves.
			At 101.0 - 101.5, SILT (ML) INTERBEDS, 0.01 -FEET THICK: Olive green, slightly plastic.
			At 103.9 - 104.5, SILT INTERBED: SAME AS 101.0 - 101.5.
105.0 - 110.0	Continuous Core; R=4.9/5.0	107/18	105.0 - 109.9 SILTY SAND (SM): SAME AS 100.0 - 104.8, with gastropods, bivalves, razor clam.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		109/47	At 105.4 and 106.0, SILT (ML) INTERBED: Olive blue, moist, firm, nonplastic, discontinuous in core.  At 106.5 - 107.4, increase in shell fragments.  At 107.4 - 108.2, decrease in shell fragments.  At 109.9, razor clam.
110.0 - 115.0	Continuous Core; R=4.8/5.0	111/24	110.0 - 114.8 SAND (SP): Light blue gray closest to 5 Y 6/1, moist, dense, fine- grained, some silt, uniform through entire intervals, occasional shell fragments.
		113/37	At 112.2, razor clam shell.
116.0 - 120.0	Continuous Core; R=3.7/5.0	115.5/37	115.0 - 117.0 SAND (SP): SAME AS 110.0 - 114.8.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		118/75	AT 117.0, cemented sand nodule.
			117.0 - 118.0 SAND (SP): Light olive brown, 2.5 Y 5/6, moist, dense, fine- grained, iron oxide stain and laminations throughout, occasional shell fragments and shell shadows, trace mica.
			118.0 - 118.7 SAND (SP): SAME AS 117.0 - 118.0, but fine- to medium-grained, some coarse, subdiscoidal to subprismatic, and subrounded to rounded.
120.0 - 125.0	Continuous Core; R= 4.25/5.0	120.5/6	120.0 - 120.4 SAND (SP): Olive, 5 Y 5/4, wet, dense, fine- to medium-grained, predominantly fine, subdiscoidal to subprismatic, subrounded to rounded, abundant shell fragments, rounded and prismatic cobble 0.15 -feet long by 0.05 -feet wide, multicolored grains.
		124/34	120.4 - 124.25 SAND (SP): SAME AS 117.0 - 118.0.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
126.0 - 130.0	Continuous Core; R=4.7/5.0	125.3/200	125.0 - 128.5 SAND (SP): SAME AS 117.0 - 118.0.
		129.5/35	At 128.1 - 128.2, black banding.
			128.5 - 129.7 SAND (SP): Light olive gray, 5 Y 6/2, moist, dense.
			At 129.4 - 129.7, trace silt.
130.0 - 135.0	Continuous Core; R=5.6/6.0	130.5/35	130.0 - 130.2 SILT (ML): Light olive brown, 2.5 Y 5/6, moist, stiff, trace fine- grained sand.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES INC.

TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		133.5/10	130.2 - 131.5 CLAYEY SILT (CL): Olive, 5 Y 5/3, moist, dense, numerous orange iron oxide stain.  At 130.8, gray mottling.
			131.5 - 132.2 CLAY (CH): Dark gray, 2.5 Y 4/0, moist, stiff, trace silt, very plastic.
			132.2 - 132.4 CLAYEY SILT (CL): Olive gray, 5 Y 4/2, moist, stiff, slightly plastic.
			132.4 - 133.0 CLAYEY SAND (SC): Gray mottle, 5 Y 5/1, to olive, 5 Y 5/3, moist, dense, fine-grained, trace mica.
			133.0 - 134.2 SILTY SAND (SM): Gray, 2.5 Y 5/6 - 4/0, gray to dark gray mottling, moist, dense, fine-grained, trace mica.
			134.2 - 134.4 SANDY SILT (SM): Dark gray, 2.5 Y 4/0, with blue tinge, moist, dense, nonplastic.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-5 (continued)  
LOG OF SOIL BORING S302A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			134.4 - 134.9 SILTY SAND (SM): SAME AS 133.0 - 134.2.
			134.9 - 135.0 SANDY SILT (SM): Gray to dark gray, 2.5 Y 5/0 - 2.5 Y 4/0, moist, dense, fine-grained, nonplastic.
			135.0 - 135.6 SILTY SAND (SM): Dark gray, 2.5 Y 4/0, with blue twinge, moist, dense, fine-grained, some orange and olive mottling.
TOTAL DEPTH OF BOREHOLE: 135.6 Feet.			

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-6  
LOG OF SOIL BORING S302F

Date: October 28, 1988  
Weather: Partly cloudy, 72°F, wind from west at 0-5 mph.

Drill Rig: Mobil B-61, 8-inch O.D. hollow stem auger  
Sample Method: Continuous core and drive sampler

INTERVAL DRIVEN OR CORED (feet)	BLOW COUNTS; RECOVERY <sup>1</sup>	OVA <sup>2</sup> (ft/ppm)	DEPTH INTERVAL (feet) AND DESCRIPTION
Auger to 4.6			0.0 - 0.10 ASPHALT.
4.6 - 6.6	3-3-4-8; R=2.0/2.0	4.6/34	4.6 - 6.6 CLAY (CH): Very dark grayish black, 10 YR 3/2, slightly moist, very stiff, plastic, trace concrete fragments.
6.6 - 8.0	2-3-5-7; R=1.4/1.4		6.6 - 7.1 CLAY (CH): SAME AS 4.6 - 6.6. 7.1 - 7.3 SILTY CLAY (CL): Dark yellowish brown, 10 YR 4/4, slightly moist, very stiff, moderately plastic.
8.0 - 10.0	4-9-9-10; R=1.8/2.0	8.3/13	7.3 - 8.0 CLAYEY SILT (ML): Yellowish-brown, 10 YR 5/4, slightly moist, stiff, slightly plastic. 8.3 - 9.5 SANDY SILT (SM): Yellowish-brown, 10 YR 5/4, slightly moist, stiff, fine-grained sand, nonplastic.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-6 (continued)

## LOG OF SOIL BORING S302F

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
8.0 - 13.0	Continuous Core; R=1.5/5.0	9.8/9	
13.0 - 15.2	Continuous Core; R=2.2/2.2	14.0/80	13.0 - 15.2 CLAYEY SILT (CL): Olive brown, 2.5 Y 4/4, slightly moist, very stiff, moderately plastic, purple staining at 14.1 feet.
		14.1/40	
15.2 - 18.0	Continuous Core; R=2.8/2.8	16.0/6.2	15.2 - 17.5 CLAYEY SILT (CL): SAME AS 13.0 - 15.2.
		17.0/9.4	17.5 - 18.0 SILT (ML): Light brownish gray, 10 YR 6/2, slightly moist, stiff, slightly plastic.
18.0 - 20.5	Continuous Core; R=0.4/2.5		
			18.0 - 18.4 SILT (ML): SAME AS 17.5 - 18.0.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES, INC.

TABLE K-6 (continued)

## LOG OF SOIL BORING S302F

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
20.5 - 22.5	5-6-11-14; R=2.0/2.0	20.8/8.2	20.5 - 22.5 CLAYEY SILT (ML): Light olive brown, 2.5 Y 5/4, slightly moist, very stiff, slightly plastic.
23.0 - 25.5	Continuous Core; R=2.5/2.5		23.0 - 25.2 CLAYEY SILT (ML): SAME AS 20.5 - 22.5. 25.2 - 25.5 SAND (SP): Olive yellow 2.5 Y 6/6, slightly moist, dense, trace silt, fine-grained.
25.5 - 28.0	Continuous Core; R=1.3/2.5		25.5 - 26.8 SAND (SP): SAME AS 25.2 - 25.5.
28.0 - 30.5	Continuous Core; R=0.2/2.5		28.0 - 28.2 SAND (SP): SAME AS 25.2 - 25.5.
30.5 - 32.0	8-16-9-14; R=1.5/2.0	30.8/13.0	30.5 - 32.0 SAND (SP): SAME AS 25.2 - 25.5.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES, INC.

TABLE K-6 (continued)

## LOG OF SOIL BORING S302F

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
33.0 - 35.5	Continuous Core; R=2.0/2.5	34.0/8.2	33.0 - 35.0 SAND (SP): SAME AS 25.2 - 25.5.
35.5 - 38.0	Continuous Core; R=2.5/2.5	37.0/4.2	35.5 - 38.0 SAND (SP): SAME AS 25.2 - 25.5.
38.0 - 39.9	Continuous Core; R=1.9/1.9	38.0/7.4	38.0 - 39.9 SAND (SP): SAME AS 25.2 - 25.5.
39.9 - 43.0	Continuous Core; R=2.5/3.1	42.0/13.0	39.9 - 40.5 SAND (SP): SAME AS 25.2 - 25.5.
			40.5 - 42.2 FOSSILIFEROUS SAND (SP): Light olive brown, 2.5 Y 5/6, slightly moist, dense, fine-grained angular shell fragments, occasional cemented nodules.
			42.2 - 42.4 FOSSILIFEROUS SAND (SP): SAME AS 40.5 - 42.4 except light gray, 10 YR 3/1.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES, INC.

TABLE K-6 (continued)

## LOG OF SOIL BORING S302F

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
43.0 - 45.5	Continuous Core; R=2.1/2.5	43.5/11.2	43.0 - 43.3 FOSSILIFEROUS SAND (SP): SAME AS 42.2 - 42.4.
			43.3 - 44.1 SILT (ML): Light olive brown, 2.5 Y 5/4, slightly moist, stiff, slightly plastic, interbedded with fossiliferous silt and sand.
			43.5 - 43.6 FOSSILIFEROUS SILT (ML): SAME AS 43.3 - 44.1, with shell fragments.
			44.1 - 44.2 SAND (SP): Light yellowish-brown, 2.5 Y 6/4, slightly moist, dense, fine-grained.
			44.6 - 44.7 SAND (SP): SAME AS 44.1 - 44.2.
			44.7 - 45.0 SILT (ML): SAME AS 43.3 - 44.1.
			45.0 - 45.1 SAND (SP): SAME AS 44.1 - 44.2.
45.5 - 48.0	Continuous Core; R=1.7/2.5		45.5 - 45.7 SAND (SP): SAME AS 44.1 - 44.2. At 45.7, silt interbed 0.05 foot thick.
			45.8 - 47.2 SAND (SP): SAME AS 44.1 - 44.2.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES, INC.

TABLE K-6 (continued)

## LOG OF SOIL BORING S302F

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
48.0 - 50.7	Continuous Core; R=1.9/2.7	48.7/64.0	48.0 - 49.0 SAND (SP): SAME AS 44.1 - 44.2.
50.7 - 53.0	Continuous Core; R=2.3/2.3	51.0/26.0	50.7 - 53.0 SAND (SP): Light olive brown, 2.5 Y 5/6, dense, slightly moist, fine-grained, hairline iron oxide-stained laminations dipping at an angle of 20 degrees, with interbedded fine-grained sand, gray 2.5 Y 6/0.
53.0 - 54.9	Continuous Core; R=1.9/1.9		53.0 - 54.9 SAND (SP): Olive yellow, 2.5 Y 6/6, slightly moist, dense, fine-grained, trace silt.  At 54.1, silt bed 0.05 feet thick.
54.9 - 58.0	Continuous Core; R= 2.1/3.1		54.9 - 55.1 SAND (SP): Light olive brown, 10 YR 5/6, slightly moist, dense, fine-grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES, INC.

TABLE K-6 (continued)

## LOG OF SOIL BORING S302F

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			55.1 - 57.0 SAND (SP): Brownish gray, 2.5 Y 5/2, slightly moist, dense, fine-grained.  At 55.7, silt bed, 0.05 feet thick.  At 57.0, hairline silt laminations.
58.0 - 60.5	Continuous Core; R=2.1/2.5	58.0/7.0	58.0 - 60.1 SAND (SP): SAME AS 55.1 - 57.0, except light brownish gray, 2.5 Y 6/2.
60.5 - 63.0	Continuous Core; R=1.7/2.5	61.2/6.2	60.5 - 62.2 SAND (SP): SAME AS 58.0 - 60.1.  At 61.0, silt bed.  At 61.5 - 61.7, iron oxide-stained, strong brown, 7.5 Y 5/6.
63.0 - 65.8	Continuous Core; R=2.1/2.8		63.0 - 65.1 SAND (SP): SAME AS 58.0 - 60.1.  At 63.0 - 64.0, iron oxide-stained, strong brown, 7.5 YR 5/6.

TOTAL DEPTH OF BOREHOLE: 65.4 FEET

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES INC.



TABLE K-7  
LOG OF SOIL BORING S303

Date: September 19, 1988

Weather: Hazy clouds, 70°F, wind from west at 5-10 mph.

Drill Rig: Acker AD2 Auger Rig, 8-inch O.D. hollow stem auger

Sample Method: Drive Sample or continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
0.0 - 3.6	Continuous Core; R=1.8/3.6		0.0 - 0.15 ASPHALT
			0.15 - 0.5 GRADE MATERIAL
			0.5 - 2.0 CLAY (CH): Very dark grayish brown, 10 YR 3/2, slightly moist, stiff, with asphalt and wood debris.
3.6 - 8.6	Continuous Core; R=5.0/5.0		3.6 - 4.5 CLAY (CH): Very dark grayish brown, 10 YR 3/2, slightly moist, stiff, trace gravel, plastic.
			4.5 - 5.5 SILTY SAND (SM): Olive brown, 2.5 Y 4/4, slightly moist, fine- grained, trace gravel.
			5.5 - 5.9 CLAYEY SILT (ML): Dark grayish brown, 2.5 Y 4/2, slightly moist, slightly plastic.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS + ASSOCIATES, INC.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
8.6 - 13.6	Continuous Core; R=4.8/5.0	13.6/3;	5.9 - 6.2 CLAYEY SILT (ML): Yellowish brown, 10 YR 5/4, slightly moist, firm, slightly plastic, sweet odor.
			6.2 - 7.3 CLAY (CH): Very dark grayish brown, 10 YR 3/2, slightly moist, stiff, plastic.
			7.3 - 8.6 SILTY SAND (SM): Light olive brown, 2.5 Y 5/4, dry, medium dense, fine- grained.
			9.0 - 9.7 SILTY SAND (SM): Light olive brown, 2.5 Y 4/4, slightly moist, medium dense, fine grained.
			9.7 - 10.5 SILTY CLAY (CL): Dark yellowish brown, 10 YR 3/4, slightly moist, stiff, slightly plastic.
			10.5 - 10.7 SILTY SAND (SM): SAME AS 9.0 - 9.7.
			10.7 - 12.1 SILTY CLAY (CL): SAME AS 9.7 - 10.5.
			12.1 - 13.4 SANDY SILT (SM): Light olive brown, 2.5 Y 5/4, slightly moist, stiff, non-plastic.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>1</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
13.6 - 18.6	Continuous Core; R=4.1/5.0	16.5/7;	14.5 - 16.2 SILT (ML): Olive brown, 2.5 Y 4/4, slightly moist, firm, trace fine sand, orange mottling, non-plastic.
			16.2 - 18.6 SILTY CLAY (CL): Light olive brown, 2.5 Y 5/4, slightly moist, stiff, moderately plastic.
18.6 - 23.6	Continuous Core; R=5.0/5.0	19.0/28; 22.5/16	18.6 - 21.2 SILTY CLAY (CL): SAME AS 16.2 - 18.6.
			21.2 - 23.0 CLAYEY SILT (ML): Olive brown, 2.5 Y 4/4, slightly moist, firm, slightly plastic.
			23.0 - 23.6 SILTY CLAY (CL): SAME AS 16.2 - 18.6.
23.6 - 28.6	Continuous Core; R=2.3/5.0	25.0/4.5;	23.6 - 23.7 SILTY CLAY (CL): SAME AS 23.0 - 23.6, except moist, with fine interbeds of silt.
			23.7 - 25.5 SILTY SAND (SM): Yellowish brown, 10 YR 5/6, dry, medium dense, fine- grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>1</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
28.6 - 33.6	R=4.0/5.0		28.6 - 32.0 SILTY SAND (SM): SAME AS 23.7 - 25.7.
			32.0 - 32.6 SAND (SP): Yellowish brown, 10 YR 5/6, slightly moist, dense, fine-grained, trace silt.
33.6 - 36.9	Continuous Core; R=2.0/3.3	36.9/16;	35.2 - 35.7 SAND (SP): SAME AS 32.0 - 32.6.
			36.7 - 36.9 SAND (SP): Yellowish brown, 10 YR 5/6, slightly moist, dense, fine-grained, some shells, some well cemented shell nodules up to 1/2 - inch in diameter.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
36.0 - 38.3	Continuous Core; R=1.1/1.4	38.3/73;	36.9 - 37.4 FOSSILIFEROUS SAND (SP): Red, 10 YR 4/6, slightly moist, very dense, fine to coarse-grained angular shell fragments, with fine sand, trace medium-grained sand.
			37.4 - 37.7 FOSSILIFEROUS SAND (SP): SAME AS 36.9 - 37.4, except olive yellow, 2.5 Y 6/6.
			37.7 - 37.9 FOSSILIFEROUS SAND (SP): SAME AS 36.9 - 37.4, except light olive yellow, 2.5 Y 5/4.
			37.9 - 38.1 FOSSILIFEROUS SAND (SP): SAME AS 36.9 - 37.4, except dark red, 10 R 5/4.
41.6 - 42.6	Continuous Core; R= 0.8/1.0	42.5/8;	41.6 - 42.4 FOSSILIFEROUS SAND (SP): SAME AS 36.9 - 37.4, except light olive brown, 2.5 Y 5/4, chemical odor.
45.5 - 48.7	Continuous Core; R=1.7/3.2		47.0 - 47.9 SAND (SP): Yellowish brown, 10 YR 6/6, moist, dense, fine- grained, trace medium grained sand.
48.7 - 53.7	Continuous Core; R=3.2/5.0		48.7 - 50.2 SAND (SP): Light olive brown, 2.5 Y 5/4, moist, dense, fine- grained, with silt interbed.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
		0.5/0.5	50.2 - 50.9 SAND (SP): SAME AS 48.7 - 50.2, except light brownish gray, 2.5 Y 6/2.
53.7 - 58.7	Continuous core; R=1.9/5.0	55.6/1.1	50.9 - 51.9 SAND (SP): SAME AS 48.7 - 50.2. 53.7 - 55.2 SAND (SP): SAME AS 48.9 - 50.2, except light brown gray, 2.5 Y 6/2.
58.7 - 63.7	Continuous core; R=2.7/5.0	60.0/4.5	58.7 - 59.9 SAND (SP): Light brownish gray, 2.5Y 6/2, slightly moist, dense, fine-grained, trace medium-grained sand. 59.9 - 61.4 SAND (SP): SAME AS 58.7 - 59.9, with trace silt and silt interbeds.
63.7 - 68.7	Continuous Core; R=3.7/5.0	64/5; 66.0/8; 67.0/8;	63.7 - 64.1 SAND (SP): Grayish brown, 2.5 Y 5/2, slightly moist, dense, fine-grained, trace medium-grained sand.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>1</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			64.1 - 64.2 CLAY (CH): Gray, 10 YR 6/1, slightly moist, stiff, with iron oxide-staining.
			64.2 - 64.8 SAND (SP): Gray, 2.5 Y 6/0, slightly moist, dense, fine-grained.
			64.8 - 66.3 SILTY SAND (SM): Light brownish gray, 2.5 Y 6/2, slightly moist, dense, fine-grained.
			66.3 - 66.5 CLAY (CH): Gray, 10 YR 6/1, slightly moist, stiff, mottled color with sand interbeds.
			66.5 - 66.65 SILT (ML): light olive brown, 2.5 Y 5/4, slightly moist, stiff, some sand.
			66.65 - 66.85 SAND (SM): Grayish brown, 2.5 Y 5/2, slightly moist, dense, with red iron oxide-staining, with silty sand interbed.
			66.85 - 66.9 SILT (ML): Olive brown, 2.5 Y 5/4, slightly moist, dense.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>1</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
68.7 - 73.5	Continuous core; R=3.7/4.8		66.9 - 67.0 SILTY SAND (SM): SAME AS 64.8-66.3.
			67.0 - 67.4 SAND (SP): Light brownish gray, 2.5 Y 6/2, slightly moist, dense, trace silt, fine-grained.
			68.7 - 69.7 SAND (SP): SAME AS 67.0 - 67.4.
			69.7 - 70.75 SILTY SAND (SM): Grayish brown, 2.5 Y 5/2, moist, dense, with silt interbeds.
		69.0/1.0;	70.75 - 70.8 CLAYEY SILT (ML): Dark grayish brown, 2.5 Y 4/2, moist, stiff.
		70.0/1.0;	70.8 - 72.4 SILTY SAND (SM): Grayish brown, 2.5 Y 5/2, moist, dense, with iron oxide-stained silt bed at 71.9, with interbedded silts.
	71.0/35;		
	72.0/16.0;		
MUD ROTARY CORE DRILLING COMMENCES AT 73.5 FEET.			
73.5 - 78.3	Continuous Core; R=2.1/4.8		73.5 - 78.3 CLAYEY SILT (ML) WITH INTERBEDDED SILTY SAND (SM): Dark grayish brown, 2.5 Y 4/2, moist, fissile, fine- grained, slightly plastic.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES



TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>1</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
78.3 - 83.3	Continuous Core; R=0.8/5.0		78.3 - 79.1 SILTY CLAY (CL) WITH INTERBEDDED SILTY SAND (SM): Grayish brown, 2.5 Y 5/2, moist, stiff, fine- grained.
83.3 - 88.3	Continuous Core; R=0.0/5.0		87.0 - 93.0 <sup>3</sup> SILTY SAND (SM): Angular shell fragments with fine to medium sand, and silt.
88.3 - 93.8	Continuous Core; R=1.2/5.5		92.6 - 93.8 CLAYEY SILTS (ML) WITH INTERBEDDED SILTY SANDS: Olive brown, 2.5 Y 5/4, moist, stiff, fine-grained, with some iron oxide-stained interbeds, slightly plastic.
93.8 - 97.4	Continuous Core; R=0.3/3.6		97.1 - 97.4 FOSSILIFEROUS SILTY SAND (SM): Light olive brown, 2.5 Y 4/4, dense, fine- grained, shell fragments, well cemented.
97.4 - 107.7	Continuous Core; R=3.7/10.3		97.5 - 101.2 CLAYEY SAND (SC) WITH INTERBEDDED SILTY CLAY (CL): Olive brown, 2.5Y 5/4, very moist, dense, slightly plastic.
			97.0 - 107.0 <sup>3</sup> FOSSILIFEROUS SILTY SAND (SM): Fine- grained, trace medium-grained sand.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithologic description based on mud rotary cuttings.



HARGIS & ASSOCIATES, P.C.

TABLE K-7 (continued)  
LOG OF SOIL BORING S303

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>1</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
107.7 - 112.6	Continuous Core; R=0.0/4.9		107.7 - 112.6 <sup>3</sup> SAND (SP): Dark grayish brown, 2.5 Y 4/2, fine- to medium-grained, with trace shell fragments.
112.6 - 117.6	Continuous Core; R=0.0/5.0		112.6 - 117.6 <sup>3</sup> SAND (SP): Light olive brown, 2.5 Y 5/6, fine- to medium-grained, trace shell fragments.
117.6 - 122.6	Continuous Core; R=0.0/5.0		117.6 - 122.6 <sup>3</sup> SAND (SP): Olive brown, 2.5 Y 4/4, fine- to medium-grained, trace shell fragments.
122.6 - 127.6	Continuous Core; R=0.0/5.0		
127.6 - 130.9	Continuous Core; R=2.3/3.3		128.6 - 129.6 SILTY SAND (SM): Dark gray, 2.5 Y 4/0, wet, dense, fine- to medium-grained.
			129.6 - 129.9 CLAY (CL): Olive brown, 2.5 Y 4/3, wet, stiff, with iron oxide-stains.
			130.6 - 130.9 CLAY (CL): Very dark gray, 2.5 Y 3/0, wet, stiff, fissile.

TOTAL DEPTH OF BOREHOLE: 130.9 FEET.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES, INC.

TABLE K-8

## LOG OF SOIL BORING S303A

Date: October 27, 1988

Weather: Cloudy, 70°F, wind 3-5 mph from west.

Drill Rig: Ingersoll-Rand TH100 mud rotary drill rig, 5 1/2-inch O.D. core barrel

Sample Method: Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Tri-cone mud rotary drill to 70.0 feet.			
70.0 - 75.0	Continuous Core; R=4.9/5.0	71/20	70.0 - 70.9 SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, trace silt, trace mica.
		72/11	70.9 - 71.0 SILT (ML): Olive, 5 Y 4/3, moist, firm, nonplastic, orange oxide laminate at 70.9.
		73/10.5	71.0 - 71.25 SAND (SP): SAME AS 70.0 - 70.9.
		74/9.5	71.25 - 71.35 SILT (ML): SAME AS 70.9 - 71.0, with laminations of orange oxide.
			71.35 - 72.0 SAND (SP): SAME AS 70.0 - 70.9.
			72.0 - 72.2 SILT (ML): SAME AS 70.9 - 71.0.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES, INC.

TABLE K-8 (continued)  
LOG OF SOIL BORING S303A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			72.2 - 73.8 SILTY SAND (SM): Olive gray, 5 Y 5/2, moist, dense, fine-grained, trace mica, orange oxide laminations.
			73.8 - 74.8 INTERBEDDED SILTY SAND (SM) AND SILT (ML), 0.15 -feet thick. SILTY SAND (SM): SAME AS 72.2-73.8. SILT (ML): SAME AS 70.9-71.0.
			74.8 - 75.0 SILT (ML): SAME AS 70.9-71.0, olive, 5Y 4/4.
75.0 - 80.0	Continuous Core; R=5.0/5.0	76/8	75.0 - 75.7 INTERBEDDED SILT (ML) AND SANDY SILT (SM) THIN INTERBEDS, 0.01-feet thick. SILT (ML): SAME AS 70.9-71.0. SANDY SILT (SM): SAME AS 72.2-73.8.
		77.6/8.5	75.7 - 76.5 SAND (SP): Olive gray, 5 Y 4/2, moist, dense, fine-grained, trace mica.
		78.7/8.5	76.5 - 76.9 SILT (ML): SAME AS 70.9 - 71.0.
			76.9 - 78.2 SILTY SAND (SM): SAME AS 72.2 - 73.8.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES

TABLE K-8 (continued)  
LOG OF SOIL BORING S303A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			78.2 - 78.4 INTERBEDDED SILTY SAND (SM) AND SILT (ML), SAME AS 73.8-74.8.
			78.4 - 78.6 SILTY SAND (SM): SAME AS 72.2 - 73.8.
			78.6 - 78.7 SANDY SILT (ML): SAME AS 72.2 - 73.8.
			78.7 - 79.1 CLAYEY SILT (ML), Olive 5 Y 5/3, moist, stiff, slightly plastic.
			79.1 - 79.7 SILT (ML): Olive 5 Y 5/3, moist, stiff, trace fine-grained sand.
			79.7 - 79.8 SANDY SILT (SM): SAME AS 72.2 - 73.8.
			79.8 - 80.0 SILT, SAME AS 79.1-79.7.
80.0 - 85.0	Continuous Core; R=4.75/5.0	81.7/6.5	80.0 - 80.2 LAMINATED INTERBEDS OF SILT (ML) AND SANDY SILT (SM) SILT: SAME AS 79.1 - 79.7. SANDY SILT, SAME AS 72.2-73.8.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES

TABLE K-8 (continued)  
LOG OF SOIL BORING S303A

INTERVAL DRIVEN OR CORED (feet)	BLOW COUNTS; RECOVERY <sup>1</sup>	OVA <sup>2</sup> (ft/ppm)	DEPTH INTERVAL (feet) AND DESCRIPTION
		82.7/7.5	80.2 - 83.8 FOSSILIFEROUS SAND (SP): Olive gray, 5 Y 5/2, moist, dense, fine-grained, trace medium-grained, trace orange mottling, trace silt, grains are varicolored, white, orange, black, clear, intact shells to 1.5-inch, shell fragments generally less than 1/4 - inch.  At 80.2 - 81.4, increase in silt.  At 81.4 - 83.8, less fossils, some medium-grains.
		84.4/6.5	83.8 - 84.0 SANDY SILT (SM): Olive gray, 5 Y 5/3, moist, firm, nonplastic.  84.0 - 84.2 FOSSILIFEROUS SILTY SAND (SM): SAME AS 83.8 - 84.0, with shell fragments.  84.2 - 84.75 FOSSILIFEROUS SAND (SP): SAME AS 80.2 - 83.8.
85.0 - 90.0	Continuous Core; R=5.0/5.0	85.7/9.5	85.0 - 85.8 FOSSILIFEROUS SAND (SP): SAME AS 80.2 - 83.8.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES, INC.

TABLE K-8 (continued)  
LOG OF SOIL BORING S303A

INTERVAL DRIVEN OR CORED (feet)	BLOW COUNTS; RECOVERY <sup>1</sup>	OVA <sup>2</sup> (ft/ppm)	DEPTH INTERVAL (feet) AND DESCRIPTION
		86.3/8.5	85.8 - 87.7 INTERBEDDED SILTY SAND (SM), SILT (ML) AND SANDY SILT (SM) 0.01 -foot thick: with orange oxide laminations at interfaces. SILT (ML): SAME AS 79.1 - 79.7.
		86.8/105	SILTY SAND AND SANDY SILT: SAME AS 83.8 - 84.0.  AT 86.1, sand-filled "worm" tube.
			87.7 - 88.0 SILTY SAND (SM): Mottled, light olive brown, 2.5 Y 5/6, dense, fine-grained, trace mica, some medium-grained.
			88.0 - 88.6 SILTY SAND (SM): Olive 5 Y 4/3, moist, dense, fine-grained, trace mica.
		88.4/65	88.6 - 89.1 SAND (SP): Olive gray, 5Y 5/2, fine-grained, some medium-grained, moist, dense, fine-grained, black, white, and clear grains, trace orange mottling.
			89.1 - 89.5 SILT (ML): Olive, 3 Y 4/4, moist, stiff, slightly plastic, trace clay.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-8 (continued)  
LOG OF SOIL BORING S303A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
90.0 - 95.0	Continuous Core; R=5.0/5.0	89.7/75	89.5 - 89.7 SANDY SILT (SM): Olive, 5 Y 4/4, stiff, fine-grained sand, nonplastic.
			89.7 - 89.8 SILT (ML): SAME AS 79.1 - 79.7.
			89.8 - 90.0 SILTY SAND (SM): SAME AS 87.7 - 88.0, with fine-grained sand.
		90.7/55	90.0 - 90.7 SILTY SAND (SM): SAME AS 87.7 - 88.0.
		92/2	90.7 - 90.8 CLAYEY SILT (ML): SAME AS 78.7 - 79.1.
			90.8 - 91.2 LAMINATED SILT (ML) AND SILTY SAND (SM) INTERBED. SILT: SAME AS 79.1 - 79.7 SILTY SAND: SAME AS 87.7 - 88.0.
			91.2 - 91.3 SILTY SAND (SM): SAME AS 87.7 - 88.0.
		93.2/6.5	91.3 - 91.5 SAND (SP): Fine-grained, olive, 5 Y 4/3, dense, trace mica.
			91.5 - 91.6 FOSSILIFEROUS SAND (ML): Olive, 5 Y 4/3, dense, trace mica.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.



TABLE K-8 (continued)  
LOG OF SOIL BORING S303A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			91.6 - 91.7 SILT (ML): SAME AS 79.1-79.7, but laminated.
			91.7 - 92.0 FOSSILIFEROUS SAND (SP): SAME AS 91.5 - 91.6.
			92.0 - 92.2 INTERBEDDED SILTY SAND (SM) AND SILT (ML): SILTY SAND (SM): SAME AS 87.7 - 88.0 SILT: SAME AS 79.1 - 79.7.
		94.5/3	92.2 - 95.0 FOSSILIFEROUS SAND: SAME AS 91.5 - 91.6, except silty sand and fine-grained.  AT 93.1: silt layer, 0.02 -inch thick.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES INC.

TABLE K-8 (continued)  
LOG OF SOIL BORING S303A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
95.0 - 100.0	Continuous Core; R=5.0/5.0	96/25	95.0 - 95.4 SILT (ML) AND SAND (SP) INTERBEDS: SAME AS 92.2 - 95.0. SILT (ML): SAME AS 79.1 - 79.7. SAND (SP): SAME AS 91.5 - 91.6.
		98.5/15	95.4 - 100.0 SILTY SAND (SM): olive 5 Y 5/3, moist, dense, fine-grained.
		99/11	AT 96.3, shell fragments 1 1/2 -inch thick.
		99.8/13	

TOTAL DEPTH OF BOREHOLE: 100.0 Feet.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-9  
LOG OF SOIL BORING S304

Date: October 26, 1988

Weather: Overcast, 64°F, wind from west at 0-5 mph.

Drill Rig: Mobile B-61, 8-inch O.D. hollow stem auger

Sample Method: Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Auger to 4.6 Feet			0.0 - 0.10 ASPHALT.
4.6 - 8.2	Continuous Core; R=2.7/3.6	5.6/900	4.6 - 6.2 CLAY (CH): Very dark grayish brown, 10 YR 3/2, slightly moist, very stiff, plastic.  At 5.4 feet, concrete fragments, color is mottled.  6.2 - 7.3 CLAYEY SILT (ML): Yellowish brown, 10 YR 5/4, slightly moist, stiff, slightly plastic, chemical odor.
8.2 - 10.5	Continuous Core; R=1.9/2.3	9.7/1200	8.2 - 8.7 CLAYEY SILT (ML): Light olive brown, 2.5 Y 5/4, slightly moist, stiff, moderately plastic, chemical odor, with occasional gravel sized cement fragments.
10.5 - 13.0	Continuous Core; R=1.0/2.5	11.0/1150	10.5 - 11.5 CLAYEY SILT (ML): SAME AS 8.2 - 8.7.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES INC.

TABLE K-9 (continued)  
LOG OF SOIL BORING S304

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
13.0 - 18.0	Continuous Core; R=3.2/5.0	14.0/1150 15.5/1000	13.0 - 16.2 CLAYEY SILT (ML): SAME AS 8.2 - 8.7.
18.0 - 20.5	Continuous Core; R=2.4/2.5	19.2/750	18.0 - 18.7 CLAYEY SILT (ML): SAME AS 8.2 - 8.7. 19.7 - 20.4 CLAYEY SILT (ML): SAME AS 8.2 - 8.7.
20.5 - 23.0	Continuous Core; R=2.0/2.5	22.0/550	20.5 - 22.5 CLAYEY SILT (ML): SAME AS 8.2 - 8.7.
23.0 - 28.0	Continuous Core; R=5.0/5.0	25.0/550 26.7/350	23.0 - 24.5 CLAYEY SILT (ML): SAME AS 8.2 - 8.7. 24.5 - 26.1 SANDY SILT (SM): Light olive brown, 2.5 Y 5/4, slightly moist, stiff, fine-grained sand, slightly plastic. 26.1 - 28.0 SILTY SAND (SM): Olive yellow, 2.5 Y 6/6, slightly moist, dense, fine-grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-9 (continued)  
LOG OF SOIL BORING S304

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
28.0 - 30.5	Continuous Core; R=2.3/2.5	29.1/1050	28.0 - 28.6 SANDY SILT (SM): SAME AS 24.5 - 26.1, except with chemical odor. 30.1 - 30.3 SILTY SAND (SM): SAME AS 26.1 - 28.0, except with chemical odor.
30.5 - 33.0	Continuous Core; R=2.5/2.5	31.0/600 32.5/650	30.5 - 33.0 SILTY SAND (SM): SAME AS 30.1 - 30.3, except light olive brown, 2.5 Y 5/6.
33.0 - 36.9	Continuous Core; R=2.9/3.9	34.0/600 35.0/750	33.0 - 35.9 SILTY SAND (SM): SAME AS 30.1 - 30.3.
38.0 - 39.0	Continuous Core; R=1.0/1.0		38.3 - 39.0 FOSSILIFEROUS SAND (SP): Light yellowish brown, 2.5 Y 6/4, very dense, well cemented, fine-grained sand, fossil fragments are up to 1/4 -inch thick.
43.0 - 45.5	Continuous Core; R=2.5/2.5	44.6/1000	43.0 - 43.6 SILTY SAND (SM): Light olive brown, 2.5 Y 5/4, slightly moist, dense, fine-grained, chemical odor. 44.6 - 45.0 SILTY SAND (SM): SAME AS 43.0 - 43.6, with silt bed at 44.8 - 44.9.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-9 (continued)  
LOG OF SOIL BORING S304

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
45.5 - 48.0	Continuous Core; R=1.5/2.5	46.2/100	45.5 - 47.0 SILTY SAND (SM): SAME AS 43.0 - 43.6, with laminated iron oxide-stained layers, and some interbedded gray sand.  At 46.2 silt bed, 0.01 -feet thick.
48.0 - 50.5	Continuous Core; R=0.4/2.5		48.0 - 48.4 SAND (SP): Light olive brown, 2.5 Y 4/4, slightly moist, dense, fine-grained, trace mica, chemical odor.
50.5 - 53.0	Continuous Core; R=2.4/2.5	52.2/200	50.5 -52.9 SAND (SP): SAME AS 48.0 - 48.4.
53.0 - 58.0	Continuous Core; R=1.2/5.0	53.5/45	53.0 - 53.8 SAND (SP): SAME AS 48.0 - 48.4.  53.8 - 54.2 SAND (SP): Brownish yellow, 10 YR 6/6, slightly moist, dense, fine-grained, trace medium-grains.
58.0 - 60.5	Continuous Core; R=1.5/2.5	58.3/70	58.0 - 59.0 SAND (SP): SAME AS 53.8 - 54.2.  59.0 - 59.5 SAND (SP): Light gray, 7.5 YR 7/0, slightly moist, dense, fine-grained.

TOTAL DEPTH OF BOREHOLE: 60.5 Feet

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = Length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-10

## LOG OF SOIL BORING S304A

Date: October 12, 1988

Weather: Warm, clear, light wind from southwest.

Drill Rig: Ingersoll-Rand TH100 mud rotary drill rig, 5-1/2 -inch O.D. core barrel

Sample Method: Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Tri-cone mud rotary drill 0 to 57.5 feet			
57.5 - 60.0	Continuous Core R=2.5/2.5	58.7/35	57.5 - 58.8 SAND (SP): Light yellowish gray, 2.5 Y 6/4, dense, fine-grained, trace silt, micaceous.
			58.8 - 58.9 SILT (ML): Brownish yellow, 10 YR 6/6, moist, hard, slightly plastic, fissile.
			58.9 - 60.0 SAND (SP): Strong brown, 7.5 YR 5/6, dense, fine-grained, trace mica.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS &amp; ASSOCIATES, INC.

TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
60.0 - 65.0	Continuous Core R=4.9/5.0	61/100 65/5	60.0 - 64.9 SAND (SP): Light brownish gray, 2.5 Y 6/2, moist, fine-grained, dense, trace mica, uniform dark hairline laminations of darker grains.  At 61.0 - 61.1, Some silt, micaceous.  At 62.2 - 62.8, Pale olive 5 Y 6/3.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.



TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
65.0 - 70.0	Continuous Core R=5.0/5.0	65.5/250  66/30  68/150  69/25	65.0 - 68.0 FOSSILIFEROUS SAND (SP): Light brownish gray, 2.5 Y 6/2, with orange oxide-stains, dense, fine-grained, abundant intact shells up to 3/4 -inches in length, bivalves, abundant angular shell fragments.  At 67.7 - 67.85, SILT (ML): Light olive gray, 5 Y 6/2, stiff, non- to slightly plastic.  68.0 - 70.0 SAND (SP): Light olive gray, 5 Y 6/2, moist, dense, fine-grained, hairline laminations of darker grains.  At 68.7 - 68.75, SILT (ML): SAME AS 67.7 - 67.85.  At 69.5 - 69.55, SILT (ML): SAME AS 67.7 - 67.85.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
70.0 - 73.3	Continuous Core R=3.3/3.3	70/25 71/120 71.5/520 73/750	70.0 - 72.1 SAND (SP): Light olive gray, 5 Y 6/2, moist, dense, fine- to medium-grained, spherical to subprismatic, angular to subangular, sand alternates in 0.2-foot intervals as fine- then fine- to medium grained, some orange oxide-stains.  72.1 - 72.6 SILT (ML): Pale olive, 5 Y 6/3, moist, very stiff, nonplastic, upper and lower contacts are gradational.  72.6 - 72.9 SILTY SAND (SM): Olive gray, 5 Y 5/2, dense, fine-grained, trace mica.  72.9 - 73.1 SILT (ML): Pale olive, 5 Y 6/4, thin orange oxide laminations, stiff, nonplastic.  73.1 - 73.3 SAND(SP): Pale yellow 5 Y 7/3, moist, fine- to medium-grained, spherical to subprismatic, angular to subangular.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
73.3 - 75.0	Continuous Core R=2.1/2.7	73.4/940 74.5/820	73.3 - 73.6 SAND (SP): Olive gray, 5 Y 4/2, moist, dense, fine-grained.
			73.6 - 73.7 SILT (ML): Olive, 5 Y 5/6, moist, stiff, nonplastic, thinly laminated with occasional orange oxide laminations.
			73.7 - 73.8 SAND (SP): SAME AS 73.3 - 73.6.
			73.8 - 74.0 SILT (ML): SAME AS 73.6 - 73.7.
			74.0 - 74.1 SANDY SILT, SILTY SAND (SM): Olive 5 Y 4/3, moist, dense, nonplastic.
			74.1 - 74.3 SAND (SP): Fine-grained with orange oxide laminations.
			At 74.2, SAND (SP): SAME AS 73.3-73.6.
			74.3 - 74.6 INTERBEDDED SAND (SP) and SILT (ML), 0.05 -feet thick: SAME AS 73.8 - 74.1.
			74.6 - 75.0 SILT (ML): SAME AS 73.8 - 74.0.
			At 74.6, orange oxide-stains.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS + ASSOCIATES, INC.

TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
76.25 - 80.5	Continuous Core R=3.45/4.25	76.4/700 78.8/750	76.25 - 76.55 SILTY SAND (SM): Olive, 5 Y 4/4, wet, dense, fine-grained, micaceous, white precipitation occurring after core is opened
			76.55 - 76.7 SILT (ML): Light olive brown, 2.5 Y 5/6, stiff, some fine-grained sand, nonplastic.
			76.7 - 76.85 SILTY SAND (SM): SAME AS 76.25 - 76.55.
			76.85 - 77.35 SILT (ML): SAME AS 76.55 - 76.7.
			77.35 - 77.55 SILTY SAND (SM): SAME AS 76.25 - 76.55.
			77.55 - 77.75 SANDY SILT (SM): SAME AS 76.25 - 76.55.
			77.75 - 78.83 SAND (SP): Pale olive 5 Y 6/4, wet, fine-grained, increasing fine with depth, trace mica, purplish tinge in sand above silt contact.
			78.83 - 79.35 SANDY SILT (SM): SAME AS 76.25 - 76.55, thinly laminated.
			79.35 - 79.6 SAND (SP): SAME AS 77.75 - 78.83.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
80.0 - 85.0	Continuous Core R=4.9/5.0	81/750	80.5 - 81.4 SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained, trace mica, purple sheen, some silt.
			81.4 - 81.8 INTERBEDDED SILT (ML) AND SILTY SAND (SM), 0.15-foot thick. SILT: SAME AS 81.8 - 82.5. SILTY SAND: Olive gray, 5 Y 5/2, wet dense, fine- grained, trace mica.
			81.8 - 82.5 SILT (ML): Light yellowish brown, 2.5 Y 6/4, moist, stiff, fine- grained, nonplastic.
			82.5 - 82.85 SANDY SILT (SM): Olive 5 Y 5/8, moist, stiff, thinly laminated, nonplastic.
			82.85 - 83.0 SILT (ML): SAME AS 81.8 - 82.5.
			83.0 - 83.15 SAND (SP): Light yellowish brown, 2.5 Y 6/4, wet, dense, fine-grained, orange oxide-stains, trace mica.
			83.15 - 83.4 SILT (ML): SAME AS 81.0 - 82.5.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
85.5 - 90.5	Continuous Core R=4.5/5.0	86.5/180 88.5/250 89.3/650	83.4 - 84.9 FOSSILIFEROUS SAND (SP): Pale olive, 5 Y 6/3, moist to wet, dense, fine-grained with some silt, abundant angular shell fragments up to 1/2 -inch in length, bivalves.
			85.5 - 88.0 FOSSILIFEROUS SAND (SP): SAME AS 83.4 - 85.5.  At 86.8 and 87.5, white oyster shells 0.1 -feet in length.
			88.0 - 89.0 SILTY SAND (SM): Pale olive, 5 Y 6/3, wet, dense, fine-grained, trace mica.
			89.0 - 89.4 INTERBEDDED SILTY SAND (SM) AND SILT (ML), 0.05 to 0.1-feet thick. SILTY SAND: Olive gray, 5 Y 4/3, wet, dense, fine-grained, trace mica. SILT: Light brown, 2.5 Y 5/4, moist, stiff, nonplastic, thinly laminated orange oxide throughout interval.
			89.4 - 90.0 SAND (SP): Olive gray, 5 Y 5/2, wet, dense, fine-grained, trace mica, trace laminated orange oxide-stains.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
90.5 - 95.5	Continuous Core R=5.0/5.0	91.4/700	90.5 - 91.5 SAND (SP): SAME AS 89.4 - 90.0
		92.7/250	91.5 - 92.0 SILT (ML): Light olive brown, 2.5 Y 5/4, moist, stiff, nonplastic, thinly laminated, orange oxide laminations.
		93.6/150	
		94.8/160	92.0 - 93.0 INTERBEDDED SANDY SILT AND SILTY SAND (SM), 0.02 to 0.1 -feet thick. SANDY SILT: Light olive brown, 2.5 Y 5/4, moist, stiff, fine-grained, nonplastic. SILTY SAND: Olive gray, 5 Y 4/2, wet, dense, fine-grained, trace mica, hairline laminations of dark grains.
			93.0 - 93.8 SILT (ML): SAME AS 91.5 - 92.0.
			93.8 - 94.8 SAND (SP): Light olive gray, 5 Y 6/2, wet, dense, fine- to medium-grained, spherical to sub-prismoidal, subangular to subrounded, trace mica, trace orange oxide stains.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			94.8 - 95.1 SILTY SAND (SM): Pale olive, 5 Y 6/4, moist, dense, fine-grained, orange oxide stains.
			95.1 - 95.5 FOSSILIFEROUS SILTY SAND (SM): Pale olive, 5 Y 6/2, wet, dense, fine-grained, abundant bivalve fragments, trace cementation in some places.
95.5 - 100.5	Continuous Core R=3.6/5.0	96/110 98.5/40	95.5 - 97.4 FOSSILIFEROUS SILTY SAND (SM): SAME AS 95.1 - 95.5.
			97.4 - 99.1 SILTY SAND (SM): Pale yellow, 5 Y 7/4, moist, dense, fine-grained, orange oxide mottling.
100.5 - 105.5	Continuous Core R=5.0/5.0	102/120 104/45	100.5 - 105.5 SILTY SAND (SM): SAME AS 97.4 - 99.1.
105.5 - 110.5	Continuous Core R=5.0/5.0	106/55 110/20	105.5 - 106.0 SILTY SAND (SM): SAME AS 97.4 - 99.1.
			106.0 - 110.5 SAND (SP): Pale olive, 5 Y 6/4, moist, dense, fine-grained, trace silt, trace mica.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
110.5 - 115.5	Continuous Core R=5.0/5.0	112/40	110.5 - 115.5 SAND (SP): SAME AS 106.0 - 110.5.
		114/80	At 113.0 - 115.5, Olive yellow, 2.5 Y 6/6, gradual color change.  At 115.5, cemented nodules.
115.5 - 120.5	Continuous Core R=5.0/5.0	117/125	115.5 - 117.3 SAND (SP): Light yellowish brown, 2.5 Y 6/4, moist, dense, fine- to medium-grained.
		119.5/45	117.3 - 119.3 SAND (SP): Pale olive 5 Y 6/3, moist, dense, fine- to medium- grained, fine sand predominant, trace shell fragments, trace mica.
			119.3 - 120.5 SAND (SP): Pale olive 5 Y 6/3, moist, dense, fine- to medium- grained, medium-grained predominant, unusual colored grains, red, black, white, clear, pink, orange oxide- stains.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES

TABLE K-10 (continued)  
LOG OF SOIL BORING S304A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
120.5 - 125.5	Continuous Core R=5.0/5.0	121.8/35	120.5 - 121.75 SAND (SP): SAME AS 119.3 - 120.5.
		125/50	121.75 - 124.5 SAND (SP): SAME AS 119.3 - 120.5, but without orange oxide-stains.
			124.5 - 125.3 SAND (SP): Olive yellow, 2.5 Y 6/6, moist, dense, fine- to medium-grained, predominately medium-grained, multicolored grains present.
125.5 - 130.5		126/60	125.3 - 126.8 SAND (SP): SAME AS 124.5 - 125.3, except pale yellow, 2.5 Y 7/4.
		128/35	
		129.5/95	126.8 - 128.0 SAND (SP): Pale olive, 5 Y 6/3, moist, dense, fine- to medium-grained, with some silt and silty sand interbeds, interbeds, are 0.01 to 0.05 -feet thick.
			128.0 - 130.5 SILT (ML): Olive 5 Y 5/3, moist, stiff, nonplastic.
			At 128.3 - 128.4, SILTY SAND (SM): Gray, 5 Y 6/1, wet, fine- to medium-grained.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) in soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.



HARGIS & ASSOCIATES, INC.

TABLE K-11

## LOG OF SOIL BORING S305

Date: September 26, 1988  
 Weather: Overcast, 70°F, no wind.

Drill Rig: Acker AD2 Auger Rig, 8-inch O.D. hollow stem auger  
 Sample Method: Drive Sampler and continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
0.7 - 3.5	Continuous Core; R=2.4/2.8		0.0 - 0.15 ASPHALT.
			0.15 - 0.7 GRADE MATERIAL.
			1.1 - 2.8 GRAVELLY CLAY (GC): Very dark grayish brown, 10 YR 3/2, slightly moist, stiff, trace red brick, plastic, chemical odor.
			2.8 - 3.3 SILTY CLAY (CH): Very dark brown, 10 YR 2/2, slightly moist, trace gravel, moderately plastic, chemical odor.
3.5 - 8.5	Continuous Core; R=5.0/5.0	7.3/>1000	3.5 - 7.5 SILTY CLAY (CH): Very dark brown, 10 YR 2/2, slightly moist, very stiff, trace gravel, moderately plastic, chemical odor.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

HARCIS ASSOCIATES

TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
8.5 - 13.5	Continuous Core; R=5.0/5.0		7.5 - 13.5 SANDY SILT (SM): Light olive brown, 2.5 Y 5/6, slightly moist, stiff, fine-grained, trace fine-grained white crystals, slightly plastic, chemical odor.  At 10.2, silty clay interbed.
13.5 - 18.5	Continuous Core; R=1.8/5.0	14.1/>1000	13.5 - 15.3 SANDY SILT (SM): SAME AS 7.5 - 13.5, except with trace gravel.
18.5 - 23.5	Continuous Core; R=5.0/5.0		18.5 - 19.6 SANDY SILT (SM): Yellowish brown, 10 YR 5/4, slightly moist, firm, fine-grained, slightly plastic.  19.6 - 23.5 SILTY CLAY (CL): Yellowish brown, 10 YR 5/4, slightly moist, very stiff, moderately plastic.
23.5 - 25.0	18-17-18; R=1.5/1.5	23.8/>1000	24.3 - 25.0 SILT (ML): Brown, 10 YR 5/3, slightly stiff, some fine-grained sand, slightly plastic, slight chemical odor.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
25.0 - 28.5	Continuous Core; R=1.7/3.5		25.0 - 26.6 SILT (ML): Brown, 10 YR 5/3, slightly moist, stiff, slightly plastic.
			26.6 - 26.7 SILTY SAND (SM): Brown, 10 YR 5/3, slightly moist, medium dense, fine- grained, with laminated silt interbeds.
28.5 - 33.5	Continuous Core; R=3.5/5.0		28.5 - 32.0 SILTY SAND (SM): Light yellowish brown, 2.5 Y 6/4, slightly moist, medium dense, fine-grained, strong chemical odor.
33.5 - 35.0	13-13-16; R=1.5/1.5	33.8/>1000	34.3 - 35.0 SILTY SAND (SM): SAME AS 28.5 - 32.0.
			35.0 - 37.0 SILTY SAND (SM): SAME AS 28.5 - 32.0, except dry with mottled moist areas.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

HARCHER ASSOCIATES

TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
35.0 - 38.5	Continuous Core; R=2.9/3.5		37.0 - 37.4 FOSSILIFEROUS SILTY SAND (SM): Light yellowish brown, 2.5 Y 6/4, dry, medium dense, fine-grained sand, angular shell fragments, chemical odor.
			37.4 - 37.9 FOSSILIFEROUS SILTY SAND (SM): SAME AS 37.0 - 37.4, except with cemented angular shell fragments.
38.5 - 43.5	Continuous Core; R=4.2/5.0		38.5 - 41.6 FOSSILIFEROUS SAND (SP): Light yellowish brown, 10 YR 6/4, slightly moist, dense, fine-grained, with coarse-grained angular shell fragments, calcareous cemented fragments in a noncemented matrix.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

CHARLES E. ASSOCIATES

TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
43.5 - 45.0	13-20-30; R=1.5/1.5	43.8/>1000	41.6 - 42.7 SILTY SAND (SM): Olive brown, 2.5 Y 5/4, slightly moist, medium dense, fine-grained sand, hairline iron oxide stains and sandy silt layers, chemical odor.
			44.3 - 45.0 SILTY SAND (SM): SAME AS 41.6 - 42.7.
			45.0 - 46.5 SILTY SAND (SM): Light brownish gray, 2.5 Y 6/2, slightly moist, medium dense, fine-grained sand, with darker moist areas.
45.0 - 48.5	Continuous Core; R=2.8/3.5		46.5 - 47.8 SILTY SAND (SM): Light olive brown, 2.5 Y 5/4, slightly moist, medium dense, fine-grained with hairline iron oxide stains and sand interbeds.
48.5 - 53.5	Continuous Core; R=2.8/5.0		48.5 - 51.3 SILTY SAND (SM): SAME AS 46.5 - 47.8, except with strong chemical odor.
53.5 - 55.0	12-13-18; R=1.5/1.5		53.5 - 55.0 CLAY (CH): Dark grayish brown, 2.5 Y 4/2, slightly moist, very stiff, plastic, with interbeds of silty sand, chemical odor.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

HARCO ASSOCIATES

TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
55.0 - 58.5	Continuous Core; R=3.5/3.5		55.0 - 55.5 SILTY SAND (SM): Dark yellowish brown, 10 YR 4/2, slightly moist, medium dense, fine-grained.
			55.5 - 56.2 CLAY (CH): Dark grayish brown, 2.5 Y 4/2, slightly moist, stiff, with interbeds of silty sand, plastic.
			56.2 - 56.7 SAND (SP): Light olive brown, 2.5 Y 5/4, slightly moist, medium dense,, fine-grained, with silt and iron oxide-stained interbeds.
			56.7 - 58.1 CLAY (CH): Dark grayish brown, 2.5 Y 4/2, slightly moist, very stiff, plastic.
			58.1 - 58.5 SILT (ML): Brown 10 YR 4/3, slightly moist, stiff, slightly plastic.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

HARVEY ASSOCIATES



TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
58.5 - 63.5	Continuous Core; R=4.5/5.0		58.7 - 61.7 SANDY SILT (SM): Dark grayish brown, 2.5 Y 4/2, slightly moist, fine- grained sand.
			61.7 - 63.0 SAND (SP): Light brownish gray, 2.5 Y 6/2, slightly moist, dense, fine-grained, trace medium-grained with hairline interbeds of silt and iron oxide-stained interbeds.
63.5 - 65.0	20-37-30; R=1.5/1.5	63.7/8	63.5 - 65.0 SAND (SP): SAME AS 61.7 - 63.0.
			65.0 - 66.0 SILTY SAND (SM): Light olive brown, 2.5 Y 5/4, slightly moist, dense, fine-grained sand.
65.0 - 68.5	Continuous Core; R=3.0/3.5		66.0 - 68.0 SAND (SP): Light olive brown, 2.5 Y 5/4, moist, dense, fine- grained, with hairline iron oxide- stained and silt interbeds.
68.5 - 73.5	Continuous Core; R=2.4/5.0		68.5 - 70.9 SILTY SAND (SM): Grayish brown, 2.5 Y 5/2, moist, dense, fine- grained, with 1 -inch clay bed at 69.7, chemical odor.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

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TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
73.5 - 78.5	Continuous Core; R=2.8/5.0		73.5 - 74.7 SAND (SP): Dark grayish brown, 2.5 Y 4/2, wet, dense, fine-grained, sheen visible in sand directly above clay, thickness 0.05 - 0.10, chemical odor.
			74.7 - 74.8 CLAY (CH): Olive brown, 2.5 Y 4/4, very moist, stiff, plastic, chemical odor.
			74.8 - 75.0 SAND (SP): SAME AS 73.5 - 74.7.
			75.0 - 75.3 CLAY (CH): Olive brown, 2.5 Y 4/4, very moist, very stiff, plastic, chemical odor.
			75.3 - 75.6 SAND (SP): SAME AS 73.5 - 74.7.
			75.6 - 76.3 SILTY SAND (SM): Olive brown, 2.5 Y 4/4, very moist, dense, fine- grained, chemical odor.

TRI-CONE MUD ROTARY CORE DRILLING COMMENCES AT 78.5 FEET.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

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TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
78.5 - 80.0	Continuous Core; R=0.5/1.5		78.5 - 80.0 INTERBEDDED SAND (SP) AND SILT (ML): Grayish brown, 2.5 Y 4/2, wet, very dense, fine-grained, micaceous. SILT: brown, 10 YR 5/3, wet, stiff, slightly plastic.
80.0 - 85.0	Continuous Core; R=1.2/5.0		80.0 - 81.2 SAND (SP) WITH SILT (ML) INTERBED: SAND (SP): Dark grayish brown, 2.5 Y 4/2, wet, very dense, fine- grained, micaceous, chemical odor, hairline orange iron oxide stains. SILT (ML): Brown, 10 YR 5/3, wet, stiff, slightly plastic.
85.0 - 87.0	Continuous Core; R=1.2/2.0		85.0 - 85.1 SILT (ML): Dark grayish brown, 2.5 Y 5/2, wet, stiff, slightly plastic.
			85.1 - 86.5 FOSSILIFEROUS SAND (SP): Grayish brown, 2.5 Y 5/2, wet, dense, fine- grained, with trace silt, slight chemical odor, intact shell up to 1 1/2 -inch, abundant shell fragments, shell fragments are horizontally laminated, iron oxide- staining.

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.

D. HARGIS AND ASSOCIATES

TABLE K-11 (continued)  
LOG OF SOIL BORING S305

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
87.0 - 127.0			87.0 - 95.0 SAND (SP/ML): Grayish brown, 2.5 Y 5/2, wet, dense, fine-grained, with trace silt, some shell fragments, and silt, brown, 10 YR 5/3, wet, stiff, slightly plastic. 95.0 - 99.0 <sup>3</sup> SAND (SP): Wet, dense, fine-grained. 99.0 - 104.0 <sup>3</sup> SAND (SP): SAME AS 95.0 - 99.0. 104.0 - 108.0 <sup>3</sup> SAND (SP): SAME AS 95.0 - 99.0, except trace medium sand. 108.0 - 113.0 <sup>3</sup> SAND (SP): SAME AS 95.0 - 99.0. 113.0 - 118.0 <sup>3</sup> SAND (SP): Wet, dense, fine- to medium-grained, multicolored grains. 118.0 - 127.0 <sup>3</sup> SAND (SP): SAME AS 113.0 - 118.0.
127.0 - 130.0	Continuous Core; R=0.0/3.0		
130.0 - 132.0	Continuous Core; R=0.0/2.0		

TOTAL DEPTH OF BOREHOLE: 132.0 FEET

- 1 Blow counts per 0.5 foot interval using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Organic vapor analyzer (OVA) readings in parts per million (ppm) of soil collected at depth indicated. OVA background readings deducted when reported values are below 50 ppm.
- 3 Lithology based on Mud Rotary cuttings.



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TABLE K-12

## LOG OF SOIL BORING S305A

Date: October 16, 1988

Weather: Partly foggy but clearing, sunny, 80°F, variable breeze mostly from south.

Drill Rig: Ingersoll-Rand TH100 mud rotary drill rig, 5 1/2 -inch O.D. core barrel  
Sample Method: Continuous core

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
Tri-cone mud rotary drill to 65 feet			
65.0 - 70.0	Continuous Core; R=5.0/5.0	67.2/6.5  69.7/1.0	65.0 - 69.9 SAND (SP): Light olive brown, 2.5 Y 5/4, moist, dense, fine- grained, trace silt, trace mica, occasional banded iron oxide-stains ranging from hairline to 0.1 -foot in thickness, white and black hairline laminations.  At 65.0 - 66.8, black and white hairline laminations dipping approximately 30°, cross bedded.  At 68.0 - 69.5, SAME AS 65.0 - 66.8.  At 66.7, thin silt layer not continuously horizontal across core.
		69.9 - 70.0	SILT (ML): Olive brown, 2.5 Y 4/4, moist, dense, nonplastic, trace mica.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES

TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
70.0 - 75.0	Continuous Core; R=4.25/5.0	71.0/130	70.0 - 72.5 SAND (SP): Olive, 5 Y 4/3, moist, dense, fine-grained, iron oxide laminations at 71.0 - 71.1 -feet.
		73.2/120	
		73.4/30	At 71.4 - 71.7, silt laminations approximately 0.05 -feet in width, not continuous across core.
			72.5 - 72.65 SILT (ML): Olive 5 Y 4/4, moist, dense, nonplastic, iron oxide- stains, sandy silt interbed.
			72.65 - 73.45 SAND (SP): SAME AS 70.0 - 72.5, but with some medium-grained sand.  At 73.0 - 73.2, oily sheen.
			73.45 - 73.55 SILT (ML): SAME AS 72.5 - 72.65, but no iron oxide-stains.
			73.55 - 73.95 SAND (SP): SAME AS 72.65 - 73.45, with oily sheen.
			73.95 - 74.2 SILT (ML): SAME AS 72.5 - 72.65.
			74.2 - 74.25 SAND (SP): SAME AS 72.65 - 73.45.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.

HARGIS ASSOCIATES

TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
75.0 - 80.0	Continuous Core;  R=5.0/5.0	75.6/31.5;  79.3/15.5	75.0 - 75.25 SAND (SP): Olive, 5 Y 4/4, moist, dense, fine-grained, trace mica, iron oxide-stains.  75.0 - 76.0 SILT (ML): Olive 5 Y 4/4, moist, dense, trace mica, hairline iron oxide laminations, nonplastic.  76.0 - 76.5 SAND (SP): SAME AS 75.0 - 75.25.  76.5 - 77.7 INTERBEDDED SILT AND SILTY SAND. SILT (ML): SAME AS 75.0 - 76.0. SILTY SAND (SM): Olive 5 Y 4/4, moist, dense, fine-grained, trace mica.  77.7 - 78.2 SILT: SAME AS 75.0 - 76.0.  78.2 - 78.5 SANDY SILT (SM): Olive 5 Y 4/4, moist, dense, fine-grained, trace mica, iron oxide-stains.  78.5 - 79.0 SILT (ML): SAME AS 75.0 - 76.0, some medium.  79.0 - 79.2 SAND (SP): SAME AS 75.0 - 75.25, with some medium grains.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES

TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			79.2 - 79.4 INTERBEDDED SILT AND SANDY SILT: SILT (ML): SAME AS 78.5 - 79.0. SANDY SILT: SAME AS 78.2 - 78.5.  At 79.3 - 79.5, oily sheen.
			79.4 - 79.75 SAND: SAME AS 75.0 - 75.25
			79.75 - 80.0 SILT: SAME AS 75.0 - 76.0.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



HARGIS ASSOCIATES



TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
80.0 - 85.0	Continuous Core;  R=4.9/5.0	81.8/300  84.9/12	80.0 - 80.3 SILT (ML): SAME AS 75.0 - 76.0.  80.3 - 80.9 SAND (SP): Olive 5 Y 5/4, moist, dense, fine-grained, trace silt, trace mica, iron oxide laminations.  81.9 - 82.5 INTERBEDDED SILT (ML) AND SILTY SAND SILT (SM): SAME AS 75.0 - 76.0. SILTY SAND (SM): Olive 5 Y 4/4, moist, dense, fine-grained, trace mica.  82.5 - 83.1 SILT: SAME AS 75.0 - 76.0, but stiff.  83.1 - 83.8 SILT: SAME AS 75.0 - 76.0, but no iron oxide-stains.  83.8 - 84.1 SILT: SAME AS 75.0 - 76.0, but stiff.  84.1 - 84.9 FOSSILIFEROUS CLAYEY SAND (SC): Olive 5 Y 5/3, moist, medium dense, trace mica, trace iron oxide, shell fragments 0.1 - 0.15 -feet in length, oyster shell at 84.1, non-cemented.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
85.0 - 90.0	R=0.0/5.0	90.8/900	85.0 - 90.0 NO RECOVERY.
90.0 - 95.0	R=4.9/5.0	90.9/300	90.0 - 90.6 SAND (SP): Olive 5 Y 5/3, moist, loose, fine-grained, trace silt, trace mica, iron oxide, two silt interbeds, 0.05 - 0.1 -feet thick, oily sheen.
		94.2/35	
		94.2 (silt)/150	90.6 - 91.0 SAME AS 90.0 - 90.6, with some medium grains.
			91.0 - 92.5 SILT (ML): Olive 5 Y 4/4, moist, dense, nonplastic, trace mica, hairline iron oxide laminations.  At 91.7 - 91.9 and 92.1 - 92.3, SILTY SAND (SM): Olive 5 Y 4/4, moist, dense, trace mica, fine- grained, iron oxide laminations.  At 91.0, iron oxide staining.
			92.5 - 92.8 SAND (SP): SAME AS 90.0 - 90.6.
			92.8 - 93.6 SILT (SM): SAME AS 91.0 - 92.5, but with hairline silt interbeds.

1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.

2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/dpm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
95.0 - 100.0	Continuous Core;  R=4.9/5.0	95.6/80;	93.6 - 94.25 SAND (SP): Pale olive 5 Y 6/3, damp, medium dense, fine- to medium-grained, but predominantly fine sand, trace mica, trace mafics.
			94.25 - 94.45 SILT (ML): SAME AS SILT in 91.0 - 92.5.
			94.45 - 94.9 SILT (ML) and SILTY SAND (SM) INTERBED: SAME AS 91.0 - 92.5.
			95.0 - 96.4 SAND (SP): Olive 5 Y 5/4, moist, medium dense, fine-grained, iron oxide-stains, trace mica.  At 95.0 - 95.8, oily sheen.
			96.4 - 98.1 FOSSILIFEROUS SILTY SAND (SM): Olive 5Y 4/4, moist, dense, iron oxide-stains, shell fragments, oysters and other bivalves, non- cemented.
			98.1 - 99.9 SILTY SAND (SM): Olive yellow 2.5 Y 6/6, moist, dense, iron oxide laminations, trace mica.  At 98.3, cemented silty sand nodule 0.1 -feet in diameter.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
			At 98.8, cemented silty sand nodule 0.05 -feet in diameter.
100.0 - 105.0	Continuous Core;  R=5.0/5.0	100.15/40  101.0/90  103.8/40	100.0 - 102.7 SILTY SAND (SM): Olive yellow 2.5 Y 6/6, moist, medium dense, fine- grained, trace mica, iron oxide- stains.  At 100.2 - 100.3, SILT (ML): Olive 5 Y 4/4, moist, stiff, trace mica, nonplastic, iron oxide stains.
			102.7 - 105.0 SILTY SAND (SM): Olive yellow 5 Y 6/6, moist, dense, fine-grained, trace mica, iron oxide laminations.
			At 104.5 - 105.10, oyster shells intact 0.05 - 0.1 -feet in length.
105.0 - 110.0	Continuous Core;  R=4.8/5.0	105.8/9.5  107.5/9.5  109.2/21.5	105.10 - 107.7 SILTY SAND: SAME AS 100.0 - 102.7.  107.7 - 110.0 SILTY SAND: SAME AS 100.0 - 102.7, with some shells.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
110.0 - 115.0	Continuous Core;	111.2/6	110.0 - 110.1 SILT (ML): Olive 5 Y 4/4, moist, dense, nonplastic.
	R=5.0/5.0	113.4/7.5	110.1 - 115.0 SAND (SP): Olive yellow 5 Y 6/6, moist, dense, trace silt, trace mica, fine-grained sand, some sparsely spaced shell fragments, hairline iron oxide laminations.  At 113.4, cemented sand nodule, 0.1 -feet in diameter.  At 114.2 - 115.0, orange iron oxide laminations, dipping at 45°.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.

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TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
115.0 - 120.0	R=4.9/5.0	116/12.5	115.0 - 117.4 SAND (SP): Olive 5 Y 5/4, SAME AS 110.1 - 115.0, with shell shadows.
		118/13.5	At 116.7, cemented sand nodule, 0.1 -feet in diameter.
			117.4 - 119.9 SAND (SP): Pale olive 5 Y 6/6, moist, dense, fine to medium- grained, subprismatic and subrounded grains, orange iron oxide stains and laminations, shell shadows.
			At 118.4, cemented sand nodule, 0.15 -feet in diameter.
			At 119.0, cemented sand nodule, 0.05 -feet in diameter.
			At 118.9, hairline orange oxide lamination.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
120.0 - 125.0	Continuous Core;	121.5/9.5	120.0 - 120.2 SAND (SP): SAME AS 117.4 - 119.9, but medium grained, subprismatic and subrounded grains.
	R=4.8/5.0	122.5/15.5	120.2 - 120.8 SAND (SP): Pale olive 5 Y 6/3, moist, dense, fine to medium grained, predominantly fine-grained, some silt.
		124.5/23.5	120.8 - 122.2 SAND (SP): Olive 5 Y 4/4, moist, dense, medium grained, subdiscoidal to subprismatic and subangular to rounded, orange iron oxide bands 0.01 - 0.1 -feet in thickness.
			122.2 - 124.3 SAND (SP): Olive 5 Y 4/4, moist, dense, medium-grained, subdiscoidal to subprismatic and subrounded to rounded.
			124.3 - 124.8 SAND (SP): SAME AS 122.2 - 124.3, but coarse and subdiscoidal to subprismatic and subrounded to rounded grains.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.



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TABLE K-12 (continued)  
LOG OF SOIL BORING S305A

<u>INTERVAL DRIVEN OR CORED (feet)</u>	<u>BLOW COUNTS; RECOVERY<sup>1</sup></u>	<u>OVA<sup>2</sup> (ft/ppm)</u>	<u>DEPTH INTERVAL (feet) AND DESCRIPTION</u>
125.0 - 129.9	Continuous Core;  R=4.9/5.0	126.1/7.5  129.1/6.0  129.6/6.0	125.0 - 126.2 SAND (SP): Olive 5 Y 4/4, moist, dense, fine to medium-grained but predominantly fine, subprismoidal and subrounded.  126.2 - 128.3 SAND (SP): Olive 5 Y 5/4, moist, dense, fine to medium-grained, but predominantly medium, subdiscoidal to subprismoidal and subangular to rounded, trace coarse.  At 126.6, hairline black lamination.  128.3 - 129.3 SAND (SP): SAME AS 126.2 - 128.3, but olive gray 5 Y 5/2.  129.3 - 129.9 SILT (ML) WITH INTERBED OF SILTY SAND (SM). SILT (ML): Olive 5 Y 5/6, moist, dense, nonplastic. SILTY SAND: Grey 5 Y 5/1, moist, dense, fine- to medium grained, subprismoidal and subrounded.

TOTAL DEPTH OF BOREHOLE: 129.9 FEET.

- 1 Blow counts per 0.5 foot interval when using a California modified drive sampler and a 140-pound hammer with a 30-inch drop. Recovery = length of sample in sampler/length of sampler driven or cored, measured in feet.
- 2 Soil collected at depth indicated/organic vapor analyzer (OVA) readings in parts per million (ppm). OVA background readings deducted when reported values are below 50 ppm.

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Appendix 1



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## APPENDIX L

### SAMPLE IDENTIFICATION INFORMATION



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**APPENDIX L**

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TABLE L-1  
ON-SITE SOIL SAMPLE IDENTIFICATION

<u>BOREHOLE</u>	<u>DATE SAMPLED</u>	<u>SAMPLE ID</u>	<u>SAMPLE INTERVAL (ft)</u>	<u>DRILLING METHOD</u>	<u>SAMPLE METHOD</u>	<u>ANALYSIS REQUESTED</u>
S101A	11/01/88	S101A-69.3*	69.3	Mud rotary	Continuous core	EPA Method 8080+8240
	11/01/88	S101A-89.3*	89.3	Mud rotary	Continuous core	EPA Method 8080+8240
	11/01/88	S101A-126.5*	126.5	Mud rotary	Continuous core	EPA Method 8080+8240
S301	10/24/88	S301-19.7	19.2-19.7	Hollow auger	Drive sample	EPA Method 8080+8240
	10/24/88	S301-28.0	27.5-28.0	Hollow auger	Continuous core	EPA Method 8080+8240
	10/25/88	S301-39.2	38.7-39.2	Hollow auger	Continuous core	EPA Method 8080+8240
	10/25/88	S301-50.3	49.8-50.3	Hollow auger	Continuous core	EPA Method 8080+8240
	10/25/88	S301-60.4	59.9-60.4	Hollow auger	Continuous core	EPA Method 8080+8240
S301A	10/14/88	S301A-72.6*	72.6	Mud rotary	Continuous core	EPA Method 8080+8240
	10/14/88	S301A-79.6*	79.6	Mud rotary	Continuous core	EPA Method 8080+8240
	10/14/88	S301A-82.1*	82.1	Mud rotary	Continuous core	EPA Method 8080+8240
	10/14/88	S301A-89.7*	89.7	Mud rotary	Continuous core	EPA Method 8080+8240
	10/14/88	S301A-127.8*	127.8	Mud rotary	Continuous core	EPA Method 8080+8240
S301B	10/28/88	S301B-9.2	8.6-9.2	Hollow auger	Hand drive sampler	EPA Method 8080+8240
S302	10/27/88	S302-5.3**	4.8-5.3	Hollow auger	Drive sampler	TOC, pH, EC, % moisture
S302A	10/17/88	S032A-73.5*	73.5	Mud rotary	Continuous core	EPA Method 8080+8240
	10/17/88	S032A-79.6*	79.6	Mud rotary	Continuous core	EPA Method 8080+8240
	10/17/88	S032A-125.3*	125.3	Mud rotary	Continuous core	EPA Method 8080+8240
S302E	10/27/88	S302-8.3**	7.8-8.3	Hollow auger	Drive sampler	EPA Method 8080+8240

\* Samples collected in addition to ones specified in QAPP/SAP. Samples were collected from mud rotary continuous core barrel.

\*\* Samples collected in addition to ones specified in QAPP/SAP. Samples were collected from hollow auger borings which were subsequently abandoned due to refusal.

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TABLE L-1 (continued)  
ON-SITE SOIL SAMPLE IDENTIFICATION

<u>BOREHOLE</u>	<u>DATE SAMPLED</u>	<u>SAMPLE ID</u>	<u>SAMPLE INTERVAL (ft)</u>	<u>DRILLING METHOD</u>	<u>SAMPLE METHOD</u>	<u>ANALYSIS REQUESTED</u>
S302F	10/28/88	S302F-5.9	5.4-5.9	Hollow auger	Drive sampler	TOC, pH, EC, % moisture
	10/28/88	S302F-9.1	8.6-9.1	Hollow auger	Drive sampler	EPA Method 8080+8240
	10/28/88	S302F-21.8	21.3-21.8	Hollow auger	Drive sampler	EPA Method 8080+8240
	10/28/88	S302F-22.3	21.8-22.3	Hollow auger	Drive sampler	TOC, pH, EC, % moisture
	10/28/88	S302F-31.3	30.8-31.3	Hollow auger	Drive sampler	EPA Method 8080+8240
	10/28/88	S302F-31.8	31.3-31.8	Hollow auger	Drive sampler	TOC, pH, EC, % moisture
	10/28/88	S302F-39.2	38.7-39.2	Hollow auger	Continuous core	EPA Method 8080+8240
	10/28/88	S302F-49.2	48.7-49.2	Hollow auger	Drive sampler	EPA Method 8080+8240
	10/28/88	S302F-49.7	49.2-49.7	Hollow auger	Drive sampler	TOC, pH, EC, % moisture
	10/28/88	S302F-59.2	58.7-59.2	Hollow auger	Drive sampler	EPA Method 8080+8240
S303	09/19/88	S303-8.4	7.9-8.4	Hollow auger	Continuous core	EPA Method 8080+8240
	09/19/88	S303-18.4	17.9-18.4	Hollow auger	Continuous core	EPA Method 8080+8240
	09/19/88	S303-25.7	25.2-25.7	Hollow auger	Continuous core	EPA Method 8080+8240
	09/19/88	S303-36.7	36.2-36.7	Hollow auger	Continuous core	EPA Method 8080+8240
	09/19/88	S303-48.0	47.5-48.0	Hollow auger	Continuous core	EPA Method 8080+8240
	09/19/88	S303-54.7	54.2-54.7	Hollow auger	Continuous core	EPA Method 8080+8240
	09/21/88	S303-129.6*	129.6	Mud rotary	Continuous core	EPA Method 8080+8240
S303A	10/27/88	S303A-83.5*	83.5	Mud rotary	Continuous core	EPA Method 8080+8240
	10/27/88	S303A-89.1*	89.1	Mud rotary	Continuous core	EPA Method 8080+8240
	10/27/88	S303A-91.6*	91.6	Mud rotary	Continuous core	EPA Method 8080+8240

\* Samples collected in addition to ones specified in QAPP/SAP. Samples were collected from mud rotary continuous core barrel.



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TABLE L-1 (continued)  
ON-SITE SOIL SAMPLE IDENTIFICATION

<u>BOREHOLE</u>	<u>DATE SAMPLED</u>	<u>SAMPLE ID</u>	<u>SAMPLE INTERVAL (ft)</u>	<u>DRILLING METHOD</u>	<u>SAMPLE METHOD</u>	<u>ANALYSIS REQUESTED</u>
S304	10/26/88	S304-9.2	8.7-9.2	Hollow auger	Continuous core	EPA Method 8080+8240
	10/26/88	S304-19.7	19.2-19.7	Hollow auger	Continuous core	EPA Method 8080+8240
	10/26/88	S304-29.6	29.1-29.6	Hollow auger	Continuous core	EPA Method 8080+8240
	10/26/88	S304-38.3	37.8-38.3	Hollow auger	Continuous core	EPA Method 8080+8240
	10/26/88	S304-44.1	43.6-44.1	Hollow auger	Continuous core	EPA Method 8080+8240
	10/26/88	S304-51.7	51.2-51.7	Hollow auger	Continuous core	EPA Method 8080+8240
	10/26/88	S304-58.8	58.3-58.8	Hollow auger	Continuous core	EPA Method 8080+8240
S304A	10/13/88	S304A-78.3*	73.3-73.5	Mud rotary	Continuous core	EPA Method 8080+8240
	10/13/88	S304A-81*	81.4	Mud rotary	Continuous core	EPA Method 8080+8240
S305	09/26/88	S305-5	5.0	Hollow auger	Continuous core	TOC, pH, EC, % moisture
	09/26/88	S305-7.8	7.3-7.8	Hollow auger	Continuous core	EPA Method 8080+8240
	09/26/88	S305-14.6	14.1-14.6	Hollow auger	Continuous core	EPA Method 8080+8240
	09/26/88	S305-24.3	23.8-24.3	Hollow auger	Drive sampler	EPA Method 8080+8240, TOC, pH, EC, % moisture
	09/26/88	S305-34.3	33.8-34.3	Hollow auger	Drive sampler	EPA Method 8080+8240, TOC, pH, EC, % moisture
	09/26/88	S305-37.0***	36.8-37.0	Hollow auger	Continuous core	EPA Method 8080+8240
	09/26/88	S305-44.3	38.8-44.3	Hollow auger	Drive sampler	EPA Method 8080+8240
	09/26/88	S305-54.3	53.8-54.3	Hollow auger	Drive sampler	EPA Method 8080+8240, TOC, pH, EC, % moisture
	09/26/88	S305-64.3	63.8-64.3	Hollow auger	Drive sampler	EPA Method 8080+8240
	09/26/88	S305-74.7***	74.5-74.7	Hollow auger	Continuous core	EPA Method 8080+8240
S305A	10/16/88	S305A-73.2*	73.2	Mud rotary	Continuous core	EPA Method 8080+8240
	10/16/88	S305A-81.5*	81.5	Mud rotary	Continuous core	EPA Method 8080+8240
	10/16/88	S305A-90.9*	90.9	Mud rotary	Continuous core	EPA Method 8080+8240
	10/16/88	S305A-73.2*	129.3	Mud rotary	Continuous core	EPA Method 8080+8240

\* Samples collected in addition to ones specified in QAPP/SAP. Samples were collected from mud rotary continuous core barrel.

\*\*\* Samples collected in addition to ones specified in QAPP/SAP.



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TABLE L-2

## ON-SITE SOIL DUPLICATE SAMPLE IDENTIFICATION

<u>BOREHOLE</u>	<u>DATE SAMPLED</u>	<u>SAMPLE ID</u>	<u>SAMPLE INTERVAL (ft)</u>	<u>DRILLING METHOD</u>	<u>SAMPLE METHOD</u>	<u>ANALYSIS REQUESTED</u>
S301	10/25/88	S301-39.7	39.2-39.7	Hollow auger	Continuous core	EPA Method 8080+8240
S302	10/27/88	S302-8.8	8.3-8.8	Hollow auger	Drive sampler	EPA Method 8080+8240
S302F	10/28/88	S302F-39.7	39.2-39.7	Hollow auger	Drive sampler	EPA Method 8080+8240
S303	09/19/88	S303-55.2	54.7-55.2	Hollow auger	Continuous core	EPA Method 8080+8240
S304	10/26/88	S304-30.1	29.6-30.1	Hollow auger	Continuous core	EPA Method 8080+8240
S305	09/26/88	S305-44.8	44.3-44.8	Hollow auger	Drive sampler	EPA Method 8080+8240



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TABLE L-3  
ON-SITE SOIL EPA SPLIT SAMPLE IDENTIFICATION

<u>BOREHOLE</u>	<u>DATE SAMPLED</u>	<u>SAMPLE INTERVAL (ft)</u>	<u>DRILLING METHOD</u>	<u>SAMPLE METHOD</u>
S303	09/19/88	48.0-48.5	Hollow auger	Continuous core
S305	09/26/88	7.8-8.3	Hollow auger	Continuous core

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**TABLE L-4**  
**ON-SITE SOIL EQUIPMENT RINSATE SAMPLE IDENTIFICATION**

<u>BOREHOLE</u>	<u>DATE SAMPLED</u>	<u>SAMPLE ID</u>	<u>SAMPLER</u>	<u>ANALYSIS REQUESTED</u>
S301	10/24/88	EBS301-19.7	Drive sampler	EPA Method 608+624
	10/25/88	EBS301-60.4	Continuous core	EPA Method 608+624
S302	10/27/88	EBS302-11.2	Drive sampler	EPA Method 608+624
	10/28/88	EBS302F-22.3	Drive sampler	EPA Method 608+624
S303	09/19/88	EBS303-54.7	Continuous core	EPA Method 608+624
S304	10/26/88	EBS304-29.6	Continuous core	EPA Method 608+624
S305	09/26/88	EBS305-34	Drive sampler	EPA Method 608+624

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